

May 2025

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I. Earned Degrees

B.S.	Physical Education	1974-1978	Central Institute of Physical Culture, Moscow, USSR
B.S.	Applied Math/Mechanics	1983-1987	Moscow Institute of Electronics & Mathematics, USSR
Ph.D.	Physiology	1991	Latvian Research Institute of Traumatology and Orthopedics, Riga and Central Institute of Physical Culture, Moscow, USSR (advisor: V.M. Zatsiorsky)

II. Employment History

1978-1984	Instructor, Depart. Biomechanics, Institute of Physical Culture, Moscow, USSR
1984-1991	Junior Scientist, Biomechanics Lab, Institute of Physical Culture, Moscow, USSR
1991-1992	Senior Scientist, Biomechanics Lab, Institute of Physical Culture, Moscow, Russia
1992-1995	Postdoctoral Associate, Faculty of Kinesiology, University of Calgary AB, Canada (advisor: W. Herzog)
2/1994-4/1994	Consultant, Peak Performance Technology Inc., Englewood, CO, USA
1995-1998	Postdoctoral Associate, Health and Performance Sciences, Georgia Institute of Technology, Atlanta, GA, USA (advisor: R.J. Gregor)
1998-2005	Senior Research Scientist, School of Applied Physiology, Georgia Institute of Technology
2005-2016	Associate Professor, School of Applied Physiology, Georgia Institute of Technology
2016-Present	Professor, School of Biological Sciences, Georgia Institute of Technology

III. Honors and Awards

2020	NSF/ECCS 2024414 award
2020	NIH/NINDS R01 NS110550 award
2017	NIH/NINDS R01 NS100928 award
2016	DOD grant MR150051 award
2015	NIH/NICHD grant R21 HD084188 award
2013	Rothschild Foundation grant award
2012	Two “Thank a Teacher” Certificates from former Applied Physiology students via the Center for Enhancement of Teaching and Learning, Georgia Tech
2012	NIH/NICHD grant R01 HD32571 award
2011	NSF Emerging Frontiers in Research and Innovation grant EFRI-1137172 award
2010	NIH/NIBIB grant R01 EB012855 award
2010	NIH/NICHD Administrative Supplement grant R01 HD32571 award
2009	NIH/NICHD grant R44 HD057492 award
2007	NIH/NICHD grant HD32571award
2006	NIH/NINDS grant R01 NS048844 award
1999	Ritsumeikan University (Japan) travel award
1995	American Society of Biomechanics postdoctoral young scientist award
1993	Alberta Heritage Foundation for Medical Research postdoctoral fellowship award
1992	University of Calgary postdoctoral fellowship award
1992	UNISPORT and the Organizing Committee of Olympic Scientific Congress (Malaga, Spain) travel award.
1977	USSR Ministry of Higher Education – Gold Medal for the best undergraduate research project in natural, technological, and social fields of study

IV. Research, Scholarship, and Creative Activities

(**boldfaced** names indicate Prilutsky group grad student/postdoc/research scientists; \* indicates corresponding authorship)

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Google Scholar profile at <https://scholar.google.com/citations?user=gE3DQUEAAAAJ&hl=en>.

## A. Published Books, Book Chapters, and Edited Volumes

### A1. Books

1. Zatsiorsky VM, Prilutsky BI (2012) Biomechanics of Skeletal Muscles. 518 pages. Champaign IL: Human Kinetics.

(Book translated and published in Japan: *Kokkakukin no Baiomekanikusu: Kinsen'i kara undo Kyochosei Made*, Tokyo: Nappu, 2014)

### A2. Refereed Book Chapters

17. Prilutsky BI\*, Zatsiorsky VM\* (2021) Neural Control Principles: Bernstein's Insights from Biomechanics of Human Movement. In: Bernstein's Construction of Movements: The Original Text and Commentaries, edited by Latash ML. New York and London: Routledge, p. 272-285.
16. Edwards DH, Prilutsky BI (2017) Sensory feedback in the control of posture and locomotion. In: Neurobiology of Motor Control: Fundamental Concepts and New Directions (Hooper SL, Büschges A., eds.), p. 263-304. New York: Wiley.
15. Markin SN\*, **Klishko AN**, Shevtsova NA, Lemay MA, Prilutsky BI, Rybak IS (2016) A comprehensive neuromechanical model of spinal locomotion. In: Neuromechanical Modeling of Posture and Locomotion (Prilutsky BI, Edwards DH Jr, eds), pp. 21-68. New York, NY: Springer.
14. Shevtsova NA\*, Hamade K, Chakrabarty S, Markin SN, Prilutsky BI, Rybak IS (2016) Modeling the organization of central neural circuits controlling two-joint leg muscles. In: Neuromechanical Modeling of Posture and Locomotion (Prilutsky BI, Edwards DH Jr, eds), pp. 121-162. New York, NY: Springer.
13. **Bondy B\***, **Klishko AN**, Edwards DH Jr, Prilutsky BI, Cymbalyuk G (2016) Control of cat walking and paw-shake by a multifunctional central pattern generator. In: Neuromechanical Modeling of Posture and Locomotion (Prilutsky BI, Edwards DH, eds), pp. 333-360. New York, NY: Springer.
12. Prilutsky BI\*, **Klishko AN**, Weber DJ, Lemay MA (2016) Computing motion dependent afferent activity during cat locomotion using a forward dynamics musculoskeletal model. In: Neuromechanical Modeling of Posture and Locomotion (Prilutsky BI, Edwards DH Jr, eds), pp. 273-308. New York, NY: Springer.
11. Prilutsky BI\*, **Klishko AN** (2011) Control of locomotion: Lessons from whole-body biomechanical analysis. In: Motor Control – Theories, Experiments, and Applications (Latash M, Danion F Eds.), pp. 197-218. Oxford University Press.
10. Prilutsky BI\*, **Klishko AN**, **Farrell B**, **Harley L**, **Philips G**, Bottasso CL (2009) Movement coordination in skilled tasks: Insights from optimization. In: Advances in Neuromuscular Physiology of Motor Skills and Muscle Fatigue (Shinohara M Ed.), pp. 139-171. Kerala, India: Research Signpost.
9. Rybak IA\*, Ivashko DG, Prilutsky BI, Lewis MA, Chapin JK (2002) Modeling neural control of locomotion: Integration of reflex circuits with CPG. In: Lecture Notes in Computer Science 2415 (Dorransoro JR Ed.), pp. 99-104. Berlin: Springer-Verlag.
8. Prilutsky BI. Introduction and endnotes to the paper by A. V. Hill, 1922 (2001) The maximum work and mechanical efficiency of human muscles, and their most economical speed. In Classical Papers in Movement Science (Latash ML, Zatsiorsky VM, Eds), pp. 243-248, 269-271. Human Kinetics.
7. Prilutsky BI. Eccentric muscle action in sport and exercise (2000) In: Encyclopedia of Sports Medicine. Biomechanics in Sport (Zatsiorsky VM, Ed), pp. 56-86. Oxford, UK: Blackwell Science Ltd.
6. Zatsiorsky VM, Prilutsky BI (1992) Prediction of forces of individual muscles in humans. In: Muscle biomechanics and movement structure. Modern problems of biomechanics. Vol. 7 (Zatsiorsky VM, Ed.), pp. 81-123. Nizhni Novgorod: Institute of Applied Physics, Russian Academy of Sciences (in Russian).

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5. Prilutsky BI (1989) Mathematical model and software for biomechanical analysis of sport movements. In: Mathematical and computer simulation in sport (Zatsiorsky VM, Utkin VL, Eds.), pp. 26-47. Moscow: All-Union Research Institute of Physical Culture (in Russian).
4. Raitsin LM, Prilutsky BI (1989) Method for estimation of quality of technique and diagnostics of technical mistakes. In Proceedings of International Society of Sport Biomechanics. Biomechanics in Sports V (Tsanouchas L, Ed.), pp. 499-505. Athens, Greece: Hellenic Sports Research Institute.
3. Aruin AS\*, Zatsiorsky VM, Prilutsky BI, Shakhnazarov AI (1987) The 'biomechanical' method used for determining the arms of muscular force. In International series on biomechanics, V.6B. Biomechanics X-B, pp.1117-1121. Champaign, IL: Human Kinetics.
2. Zatsiorsky VM\*, Prilutsky BI (1987) Soft and stiff landing. In International series on biomechanics, V.6B. Biomechanics X-B, pp.739-743. Champaign, IL: Human Kinetics.
1. Zatsiorsky VM\*, Raitsin LM, Seluyanov VN, Aruin AS, Prilutsky BI (1983) Biomechanical characteristics of the human body. In: Biomechanics and Performance in Sport (Baumann W, Ed.), pp. 71-83. Köln, Germany: Bundeninstitut fur Sportwissenschaft.

### A3. Other Parts of Books

No data

### A4. Edited Volumes

1. Prilutsky BI, Edwards DH Jr (2016) Neuromechanical Modeling of Posture and Locomotion. New York NY: Springer.

## B. Refereed Publications and Submitted Articles

### B1. Published and Accepted Journal Articles

108. **Klishko AN**, Harnie J, **Hanson CE**, **Rahmati SM**, Rybak IA, Frigon\*, Prilutsky BI\*. Effects of spinal transection and treadmill speed on muscle synergies of the cat hindlimb during locomotion (2025) **Journal of Physiology**, doi: 10.1113/JP288089. Online ahead of print.
107. **Rahmati, SM**, **Klishko AN**, Martin RS, Bunderson NE, **Meslie JA**, Nichols TR, Rybak IA, Frigon A, Burkholder TJ\*, Prilutsky BI\* (2025) Role of forelimb morphology in muscle sensorimotor functions during locomotion in the cat. **Journal of Physiology**, 603(2):447-487.
106. Rybak IA\*, Shevtsova NA, Audet J, Yassine S, Markin SN, Prilutsky BI, Frigon A\* (2025) Operation of spinal sensorimotor circuits controlling phase durations during tied-belt and split-belt locomotion after a lateral thoracic hemisection. **eLife**, 13:RP103504
105. Stephen Mari, Charly G Lecomte, Angèle N Merlet, Johannie Audet, Sirine Yassine, Oussama Eddaoui, Gabriel Genois, Charlene Nadeau, Jonathan Harnie, Ilya A. Rybak, Boris I Prilutsky, Alain Frigon\* (2024) Changes in intra- and interlimb reflexes from hindlimb cutaneous afferents after staggered thoracic lateral hemisections during locomotion in cats. **Journal of Physiology**, 602(22): 6225-6258.
104. Harnie J, Al Arab R, Mari S, Yassine S, Eddaoui O, Jéhannin P, Audet J, Lecomte C, Iorio-Morin C, Prilutsky BI, Rybak IA, Frigon A\* (2024) Forelimb movements contribute to hindlimb cutaneous reflexes during locomotion in cats. **Journal of Neurophysiology**, 131(6):997-1013.
103. Mari S, Lecomte CG, Merlet AN, Audet J, Yassine S, Eddaoui O, Genois G, Nadeau C, Harnie J, Rybak IA, Prilutsky BI, Frigon A\* (2024) Changes in intra- and interlimb reflexes from hindlimb cutaneous afferents after staggered thoracic lateral hemisections during locomotion in cats. **Journal of Physiology**, 602(9):1987-2017.
102. Mari S, Lecomte CG, Merlet AN, Audet J, Yassine S, Arab RA, Harnie J, Rybak IA, Prilutsky BI, Frigon A\* (2024) Changes in intra- and interlimb reflexes from forelimb cutaneous afferents after

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- staggered thoracic lateral hemisections during locomotion in cats. **Journal of Physiology**, doi: 10.1113/JP286808.
101. Rybak IA\*, Shevtsova NA, Markin SN, Prilutsky BI, Frigon A\* (2024) Operation regimes of spinal circuits controlling locomotion and the role of supraspinal drives and sensory feedback. **eLife**, 13:RP98841.
100. **Park H, Klishko AN, Oh K, Zhang C, Grenga G**, Herrin KR, Dalton JF, Kistenberg RS, Lemay MA, Pitkin M, DeWeerth SP, Prilutsky BI\* (2023) Electrical Stimulation of Distal Tibial Nerve During Stance Phase of Walking May Reverse Effects of Unilateral Paw Pad Anesthesia in the Cat. **Motor Control** 27:71-95.
99. Audet J, Yassine S, Lecomte CG, Mari S, Soucy F, Morency C, Merlet AN, Harnie J, Beaulieu C, Gendron L, Rybak IA, Prilutsky BI, Frigon A\* (2023) Spinal Sensorimotor Circuits Play a Prominent Role in Hindlimb Locomotor Recovery after Staggered Thoracic Lateral Hemisections but Cannot Restore Posture and Interlimb Coordination during Quadrupedal Locomotion in Adult Cats. **eNeuro** 10: 0191-23.
98. Mari S, Lecomte CG, Merlet AN, Audet J, Harnie J, Rybak IA, Prilutsky BI, Frigon A\* (2023) A sensory signal related to left-right symmetry modulates intra- and interlimb cutaneous reflexes during locomotion in intact cats. **Frontiers in Systems Neuroscience** 17:1199079.
97. Merlet AN, Jéhannin P, Mari S, Lecomte CG, Audet J, Harnie J, Rybak IA, Prilutsky BI, Frigon A\* (2022) Sensory Perturbations from Hindlimb Cutaneous Afferents Generate Coordinated Functional Responses in All Four Limbs during Locomotion in Intact Cats. **eNeuro** 9:0178-22.2022.
96. Prilutsky BI\*, Aruin AS (2022) Contributions of Vladimir M. Zatsiorsky to human movement science. **Human Movement Science** 87:103048.
95. Lecomte CG, Mari S, Audet J, Merlet AN, Harnie J, Beaulieu C, Abdallah K, Gendron L, Rybak IA, Prilutsky BI, Frigon A\* (2022) Modulation of the gait pattern during split-belt locomotion after lateral spinal cord hemisection in adult cats. **Journal of Neurophysiology** 128:1593-1616.
94. **Oh K**, Prilutsky BI\* (2022) Transformation from arm joint coordinates to hand external coordinates explains non-uniform precision of hand position sense in horizontal workspace. **Human Movement Science** 86:103020.
93. Prilutsky BI\*, Parker J, Cymbalyuk GS, **Klishko AN**. (2022) Emergence of Extreme Paw Accelerations During Cat Paw Shaking: Interactions of Spinal Central Pattern Generator, Hindlimb Mechanics and Muscle Length-Depended Feedback. **Frontiers in Integrative Neuroscience** 16:810139.
92. Audet J, Harnie J, Lecomte CG, Mari S, Merlet AN, Prilutsky BI, Rybak IA, Frigon A\*. (2022) Control of Forelimb and Hindlimb Movements and Their Coordination during Quadrupedal Locomotion across Speeds in Adult Spinal Cats. **Journal of Neurotrauma** 39(15-16):1113-1131.
91. Harnie J, Audet J, Mari S, Lecomte C, Merlet AN, Genois G, Rybak IA, Prilutsky BI, Frigon A\*. (2022) State- and condition-dependent modulation of the hindlimb locomotor pattern in intact and spinal cats across speeds. **Frontiers in Systems Neuroscience** 16:814028.
90. Parker JR, **Klishko AN**, Prilutsky BI\*, Cymbalyuk GS\* (2021) Asymmetric and transient properties of reciprocal activity of antagonists during the paw-shake response in the cat. **PLOS Computational Biology** 17(12): e1009677.
89. Frigon A\*, Akay T, Prilutsky BI (2021) Control of mammalian locomotion by somatosensory feedback. **Comprehensive Physiology** 29;12(1):2877-2947.

88. **Zhang Z**, Prilutsky BI\*, Butler AJ, Shinohara M, Ghovanloo M (2021) Design and preliminary evaluation of a tongue-operated exoskeleton system for upper limb rehabilitation. **International Journal of Environmental Research and Public Health** 18(16), 8708.
87. Prilutsky BI (2021) How to distinguish between referent configuration and internal models hypotheses of motor control?: Comment on "Laws of nature that define biological action and perception" by M. Latash. **Physics of Life Reviews** 37:1-2.
86. **Klishko AN**, Akyildiz A, **Mehta-Desai R**, Prilutsky BI\* (2021) Common and distinct muscle synergies during level and slope locomotion in the cat. **Journal of Neurophysiology** 126:493-515.
85. Pitkin M\*, Cassidy C, Shevtsov MA, **Jarrell JR**, **Park H**, **Farrell BJ**, Dalton JFI, Kistenberg RS, **Oh K**, **Klishko AN**, Prilutsky BI (2021) Recent progress in animal studies of the skin- and bone-integrated pylon with deep porosity for bone-anchored limb prosthetics with and without neural interface. **Military Medicine** 186:688-695.
84. Harnie J, Audet J, **Klishko AN**, Doelman A, Prilutsky BI\*, Frigon A\* (2021) The spinal control of backward locomotion. **Journal of Neuroscience** 41:630-647.
83. Latash EM, Barnett WH, Park H, Rider JM, **Klishko AN**, Prilutsky BI\*, Molkov YI\* (2020) Frontal plane dynamics of the centre of mass during quadrupedal locomotion on a split-belt treadmill. **Journal of Royal Society Interface** 17(170): 20200547.
82. Higgin D, Krupka A, Maghsoudi OH, **Klishko AN**, Nichols TR, Lyle MA, Prilutsky BI, Lemay MA\*. Adaptation to slope in locomotor-trained spinal cats with intact and self-reinnervated lateral gastrocnemius and soleus muscles. **Journal of Neurophysiology** 2020, 123(1):70-89.
81. **Park H**, Park H, Latash EM, Molkov YI, Klishko AN, Frigon A, DeWeerth SP, Prilutsky BI\* (2019) Cutaneous sensory feedback from paw pads affects lateral balance control during split-belt locomotion in the cat. **Journal of Experimental Biology** 222(Pt 14), jeb198648.
80. Lee SJ, **Mehta-Desai R**, **Oh K**, Sanford J\*, Prilutsky BI\* (2019) Effects of bilateral swing-away grab bars on the biomechanics of stand-to-sit and sit-to-stand toilet transfers. **Disability and Rehabilitation: Assistive Technology** 14(3):292-300.
79. **Park H**, **Islam MS**, Grover MA, Klishko AN, Prilutsky BI\*, DeWeerth SP (2018) A Prototype of a Neural, Powered, Transtibial Prosthesis for the Cat: Benchtop Characterization. **Frontiers in Neuroscience** 12: 471, doi: 10.3389.
78. **Jarrell JR**, **Farrell BJ**, Kistenberg RS, Dalton JF IV, Pitkin M, Prilutsky BI\* (2018) Kinetics of individual limbs during level and slope walking with a unilateral transtibial bone-anchored prosthesis in the cat. **Journal of Biomechanics** 76: 74-78.
77. **Parker J**, **Bondy B**, Prilutsky BI, and Cymbalyuk G\*. Control of transitions between locomotor-like and paw shake-like rhythms in a model of a multistable central pattern generator (2018) **Journal of Neurophysiology** 120: 1074-1089.
76. Gregor RJ\*, **Maas H**, **Bulgakova MA**, Oliver A, English AW, Prilutsky BI (2018) Time course of functional recovery during first three months after surgical transection and repair of nerves to feline soleus and lateral gastrocnemius muscles. **Journal of Neurophysiology** 119(3):1166-1185.
75. Lyle MA\*, Prilutsky BI, Gregor RJ, Abelew TA, Nichols TR (2016) Self-reinnervated muscles lose autogenic length feedback, but intermuscular feedback can recover functional connectivity. **Journal of Neurophysiology** 116:1055-1067.
74. **Pantall A**, **Hodson-Tole EF**, Gregor RJ, Prilutsky BI\* (2016) Increased intensity and reduced frequency of EMG signals from feline self-reinnervated ankle extensors during walking do not normalize excessive lengthening. **Journal of Neurophysiology** 115:2406-2420.

73. **Mehta R, Maas H**, Gregor RJ, Prilutsky BI\* (2015) Unexpected fascicle length changes in denervated feline soleus muscle during stance phase of walking. **Scientific Reports** 5:17619.
72. **Farrell BJ, Bulgakova MA**, Sirota MG, Prilutsky BI, Beloozerova IN\* (2015) Accurate stepping on a narrow path: mechanics, EMG, and motor cortex activity in the cat. **Journal of Neurophysiology** 114(5):2682-2702.
71. **Mehta R**, Prilutsky BI\* (2014) Task-dependent inhibition of slow-twitch soleus and excitation of fast-twitch gastrocnemius do not require high movement speed and velocity-dependent sensory feedback. **Frontiers in Physiology** 5:410. doi: 10.3389/fphys.2014.00410.
70. **Klishko AN, Farrell BJ**, Beloozerova IN, Latash ML, Prilutsky BI\* (2014) Stabilization of cat paw trajectory during locomotion. **Journal of Neurophysiology** 112(6):1376-1391.
69. **Farrell BJ, Bulgakova MA**, Beloozerova IN, Sirota MG, Prilutsky BI\* (2014) Body stability and muscle and motor cortex activity during walking with wide stance. **Journal of Neurophysiology** 112(3):504-24.
68. **Childers LW\***, Prilutsky BI, Gregor RJ (2014) Motor adaptation to prosthetic cycling in people with trans-tibial amputation. **Journal of Biomechanics** 47(10):2306-2313.
67. **Farrell BJ**, Prilutsky BI\*, Kistenberg RS, Dalton JF 4th, Pitkin M (2014) An animal model to evaluate skin-implant-bone integration and gait with a prosthesis directly attached to the residual limb. **Clinical Biomechanics** 29(3):336-349.
66. **Farrell BJ**, Prilutsky BI\*, Ritter JM, Kelley S, Popat K, Pitkin M (2014) Effects of pore size, implantation time, and nano-surface properties on rat skin ingrowth into percutaneous porous titanium implants. **Journal of Biomedical Materials Research Part A** 102(5):1305-1315.
65. Cronin NJ\*, Prilutsky BI, Lichtwark GA, **Maas H** (2013) Does ankle joint power reflect type of muscle action of soleus and gastrocnemius during walking in cats and humans? **Journal of Biomechanics** 46(7):1383-1386.
64. **Hodson-Tole EF, Pantall A, Maas H, Farrell B**, Gregor RJ, Prilutsky BI\* (2012) Task-dependent activity of motor unit populations in feline ankle extensor muscles. **Journal of Experimental Biology** 215:3711-3722.
63. **Pantall A\***, Gregor RJ, Prilutsky BI (2012) Stance and swing phase detection during level and slope walking in the cat: effects of slope, injury, subject and kinematic detection method. **Journal of Biomechanics** 45(8):1529-1533.
62. Markin SN, Lemay MA, Prilutsky BI, Rybak IA\* (2012) Motoneuronal and muscle synergies involved in cat hindlimb control during fictive and real locomotion: a comparison study. **Journal of Neurophysiology** 107(8):2057-2071.
61. **Spardy LE**, Markin SN, Shevtsova NA, Prilutsky BI, Rybak IA, Rubin JE\* (2011) A dynamical systems analysis of afferent control in a neuromechanical model of locomotion: II. Phase asymmetry. **Journal of Neural Engineering** 8(6):065004.
60. **Spardy LE**, Markin SN, Shevtsova NA, Prilutsky BI, Rybak IA, Rubin JE\* (2011) A dynamical systems analysis of afferent control in a neuromechanical model of locomotion: I. Rhythm generation. **Journal of Neural Engineering** 8(6):065003.
59. Prilutsky BI\*, **Maas H, Bulgakova M, Hodson-Tole EF**, Gregor RJ (2011) Short-term motor compensations to denervation of feline soleus and lateral gastrocnemius result in preservation of ankle mechanical output during locomotion. **Cells Tissues Organs** 193(5):310-324.

58. Ollivier-Lanvin K, Krupka AJ, AuYong N, Miller K, Prilutsky BI, Lemay MA\* (2011) Electrical stimulation of the sural cutaneous afferent nerve controls the amplitude and onset of the swing phase of locomotion in the spinal cat. **Journal of Neurophysiology** 105(5):2297-2308.
57. Prilutsky BI\*, Ashley D, VanHiel L, Harley L, Tidwell JS, Backus D (2011) Motor control and motor redundancy in the upper extremity: Implications for Neurorehabilitation. **Topics in Spinal Cord Injury Rehabilitation** 17(1):7–15.
56. Markin SN, Klishko AN, Shevtsova NA, Lemay MA, Prilutsky BI, Rybak IS\* (2010) Afferent control of locomotor CPG: insights from a simple neuromechanical model. **Annals of the New York Academy of Science** 1198: 21-34.
55. Maas H, Gregor RJ, Hodson-Tole EF, Farrell BJ, English AW, Prilutsky BI\* (2010) Locomotor changes in length and EMG activity of feline medial gastrocnemius muscle following paralysis of two synergists. **Experimental Brain Research** 203(4): 681-692.
54. Beloozerova IN\*, Farrell BJ, Sirota MG, Prilutsky BI (2010) Differences in movement mechanics, electromyographic, and motor cortex activity between accurate and non-accurate stepping. **Journal of Neurophysiology** 103: 2285–2300.
53. Lum PS\*, Mulroy S, Amdur RL, Requecjo P, Prilutsky BI, Dromerick AW (2009) Gains in upper extremity function after stroke via recovery or compensation: Potential differential effects on amount of real-world limb use. **Topics in Stroke Rehabilitation** 16(4): 237-253.
52. Maas H, Gregor RJ, Hodson-Tole EF, Farrell BJ, Prilutsky BI\* (2009) Distinct muscle fascicle length changes in feline medial gastrocnemius and soleus during slope walking. **Journal of Applied Physiology** 106(4): 1169-1180.
51. Pitkin M\*, Raykhtsaum G, Pilling J, Shukeilo Yu, Moxson V, Duz V, Lewandowski J, Connolly R, Kistenberg RS, Dalton JF IV, Prilutsky BI, Jacobson S (2009) Mathematical modeling, mechanical and histopathology testing of the porous prosthetic pylon for direct skeletal attachment. **Journal of Rehabilitation Research & Development** 46(3): 315-330.
50. Maas H, Prilutsky BI, Nichols TR, Gregor RJ\* (2007) The effects of self-reinnervation of cat medial and lateral gastrocnemius muscles on hindlimb kinematics in slope walking. **Experimental Brain Research** 181(2):377-393.
49. Bottasso CL\*, Prilutsky BI, Croce A, Imberti E, Sartirana S (2006) A numerical procedure for inferring from experimental data the optimization cost functions using a multibody model of the neuro-musculoskeletal system. **Multibody System Dynamics** 16: 123-154.
48. Gregor RJ\*, Smith DW, Prilutsky BI (2006) Mechanics of slope walking in the cat: quantification of muscle load, length change, and ankle extensor EMG patterns. **Journal of Neurophysiology** 95: 1397-1409.
47. Prilutsky BI\*, Sirota MG, Gregor RJ, Beloozerova IN (2005) Quantification of motor cortex activity and full-body biomechanics during unconstrained locomotion. **Journal of Neurophysiology** 94: 2959-2969.
46. Ivashko DG, Prilutsky BI, Markin SN, Chapin JK, Rybak IA\* (2003) Modeling the spinal cord neural circuitry controlling cat hindlimb movement during locomotion. **Neurocomputing** 52-54:621-629.
45. Prilutsky BI\*, Zatsiorsky VM (2002) Optimization-based models of muscle coordination. **Exercise and Sport Science Reviews** 30:32-38.
44. Gregor RJ\*, Smith JL, Smith DW, Oliver A, Prilutsky BI (2001) Hindlimb kinetics and neural control during slope walking in the cat: unexpected findings. **Journal of Applied Biomechanics** 17: 277-286.



43. Raikova RT, Prilutsky BI\* (2001) Sensitivity of predicted muscle forces to parameters of the optimization-based human leg model revealed by analytical and numerical analyses. **Journal of Biomechanics** 34: 1243-1255.
42. Prilutsky BI\*, Gregor RJ (2001) Swing- and support-related muscle actions differentially trigger human walk-run and run-walk transitions. **Journal of Experimental Biology** 204: 2277-2287.
41. Prilutsky BI\*, Gregor RJ (2000) Analysis of muscle coordination strategies in cycling. **IEEE Transactions on Rehabilitation Engineering** 8: 362-370.
40. Prilutsky BI\* (2000) Muscle coordination: the discussion continues. **Motor Control** 4: 97-116.
39. Prilutsky BI\* (2000) Coordination of two- and one-joint muscles: functional consequences and implications for motor control (target article) **Motor Control** 4:1-44.
38. Prilutsky BI\*, Isaka T, Albrecht AM, Gregor RJ (1998) Coordination of two-joint leg muscles during load lifting. **Journal of Biomechanics** 31:1025-1034.
37. Prilutsky BI\*, Gregor RJ, Ryan MM (1998) Coordination of two-joint rectus femoris and hamstrings during the swing phase of human walking and running. **Experimental Brain Research** 120:479-486.
36. Prilutsky BI, Herzog W\*, Allinger TL (1997) Forces of individual cat ankle extensor muscles during locomotion predicted using static optimization. **Journal of Biomechanics** 30, 1025-1033.
35. Prilutsky BI\* (1997) Work, energy expenditure, and efficiency of the stretch-shortening cycle. **Journal of Applied Biomechanics** 13, 466-471.
34. Prilutsky BI\*, Gregor RJ (1997) Strategy of coordination of two- and one-joint leg muscles in controlling an external force. **Motor Control** 1, 91-115.
33. Prilutsky BI\*, Petrova LN, Raitsin LM (1996) Comparison of mechanical energy expenditure of joint moments and muscle forces during human locomotion. **Journal of Biomechanics** 29, 405-415.
32. Prilutsky BI, Herzog W\*, Leonard TR, Allinger TL (1996) Role of the muscle belly and tendon of soleus, gastrocnemius, and plantaris in mechanical energy absorption and generation during cat locomotion. **Journal of Biomechanics** 29, 417-434.
31. Prilutsky BI, Herzog W\*, Leonard TR (1996) Transfer of mechanical energy between ankle and knee joints by gastrocnemius and plantaris muscles during cat locomotion. **Journal of Biomechanics** 29, 391-403.
30. Prilutsky BI, Herzog W\*, Allinger TL (1996) Mechanical power and work of cat soleus, gastrocnemius, and plantaris muscles during locomotion: possible functional significance of muscle design and force patterns. **Journal of Experimental Biology** 199, 801-814.
29. Herzog W\*, Zatsiorsky V, Prilutsky BI, Leonard TR (1994) Variations in force-time histories of cat gastrocnemius, soleus, and plantaris muscles for consecutive walking steps. **Journal of Experimental Biology** 191, 19-36.
28. Prilutsky BI, Herzog W\*, Allinger TL (1994) Force-sharing between cat soleus and gastrocnemius muscles during walking: explanations based on electrical activity, properties, and kinematics. **Journal of Biomechanics** 27, 1223-1235.
27. Prilutsky BI\*, Zatsiorsky VM (1994) Tendon action of two-joint muscles: transfer of mechanical energy between joints during jumping, landing, and running. **Journal of Biomechanics** 27, 25-34.
26. Prilutsky BI\*, Zatsiorsky VM, Petrova LN (1993) 'Tendon action' of two-joint muscles during human locomotion: mechanical energy transfer between links in shock-absorbing and push-off phases. **Biophysics** 38, 565-570 (in Russian).

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25. Prilutsky BI\*, Zatsiorsky VM, **Petrova LN** (1992) Mechanical energy expenditure of movement of anthropomorphic locomotor machine and human. **Biophysics** 37, 1107-1111 (in Russian).
24. Prilutsky BI\*, Zatsiorsky VM (1992) Mechanical energy expenditure and efficiency of walking and running. **Human Physiology** 18, 118-127 (in Russian).
23. Prilutsky BI\*, Zatsiorsky VM, Bravaya DY, **Petrova LN** (1992) Maximal power of extending knee joint in one-joint and natural movements. **Human Physiology** 18, 573-583 (in Russian).
22. Prilutsky BI\*, Raitsin LM, Poltorapavlov NV (1991) Biomechanical aspects of automation of motor skills. **Theory and Practice of Physical Culture** N3, 13-19 (in Russian).
21. Prilutsky BI\*. Eccentric muscle activity in sports locomotion (1991) **Theory and Practice of Physical Culture** N1, 53-61 (in Russian).
20. Prilutsky BI\*, Zatsiorsky VM (1991) Quantitative estimation of 'tendon action' of two-joint muscles. **Biophysics** 36, 154-156 (in Russian).
19. Prilutsky BI\*. Shafranov EI (1990) The use of MRI-tomography for determination of morphometric characteristics of human motor apparatus. **Human Physiology** 16, 103-107 (in Russian).
18. Prilutsky BI\*, Vasilyev VA, Raitsin LM, Aktov AV (1989) Estimation of muscle forces on the basis of minimization of different objective functions in human natural movements. **Biophysics** 34, 1041-1045 (in Russian).
17. Zatsiorsky VM, Prilutsky BI\* (1991) A model for determination of muscle forces in a given human movement. **Biophysics** 34, 1036-1040 (in Russian).
16. **Petrova LN**, Prilutsky BI\* (1989) Methods of data filtering and obtaining time derivatives in studies of sports skills. **Theory and Practice of Physical Culture** N5, 6-12 (in Russian).
15. Prilutsky BI\* (1989) Muscle pain caused by unusual exercises (a brief review). **Theory and Practice of Physical Culture** N2, 16-21 (in Russian).
14. Seluyanov VN\*, Myakinchenko EB, Bikbaev IZ, Prilutsky BI, Tsirkov VN (1989) Methods of improving economy in middle-distance running. **Theory and Practice of Physical Culture** N2, 16-21 (in Russian).
13. Aruin AS\*, Prilutsky BI (1988) Human body simulation in computer-aided design of work space. **Biology of Sport** 5 (Suppl. 1), 199-206.
12. Aruin AS\*, Zatsiorsky VM, Prilutsky BI (1988) Moment arms and elongations of the lower extremity muscles at various values of the joint angles. **Archives of Anatomy, Histology and Embryology** 94(6), 52-55 (in Russian).
11. **Petrova LN**, Prilutsky BI\* (1988) Mechanical energy expenditure of 8-10 year old boys and girls running at maximum speed. **Theory and Practice of Physical Culture** N2, 29-30 (in Russian).
10. Prilutsky BI\*, Alexandrov AA, Grigoryev VA, Fedotkina OI (1986) Negative and positive mechanical expenditures of skiers. **Theory and Practice of Physical Culture** N4, 15 (in Russian).
9. Prilutsky BI\*, Raitsin LM, Suslakov BA, Zukov IL (1986) Acceleration of the general center of mass in sprint running cycle. **Theory and Practice of Physical Culture** N11, 38-39 (in Russian).
8. Aruin AS\*, Prilutsky BI (1986) Relation between lengthening of the triceps surae muscle and knee and ankle joint angles. **Human Physiology** 12, 244-248 (in Russian).
7. Shalmanov AA, Prilutsky BI\* (1985) Determination of kinematics of human body general center of mass using ground reaction forces. **Theory and Practice of Physical Culture** N10, 7-9 (in Russian).

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6. Zatsiorsky VM\*, Aruin AS, Prilutsky BI, Shakhnazarov AI (1985) Determination of moment arms of ankle extensors by "biomechanical" method. **Human Physiology** 11, 616-622 (in Russian).
5. Zatsiorsky VM\*, Sirota MG, Prilutsky BI, Raitsin LM, Seluyanov VN, Chugunova LG (1985) Biomechanics of human body and movements after 120-day head-down tilt. **Space Biology and Aerospace Medicine** N5, 23-27 (in Russian).
4. Aruin AS\*, Prilutsky BI (1985) Relation between the biomechanical properties of muscles and their ability to utilize elastic strain energy. **Human Physiology** 11, 12-16 (in Russian).
3. Zhukov IL\*, Prilutsky BI, Raitsin LM (1983) Criteria of efficient sprint running technique. **Theory and Practice of Physical Culture** N9, 5-9 (in Russian).
2. Aruin AS\*, Prilutsky BI, Raitsin LM, Saveljev IS (1979) Biomechanical properties of muscles and efficiency of movement. **Human Physiology** 5, 589-599 (in Russian).
1. Oschepkov GG\*, Prilutsky BI (1979) Measurements of the ground reaction forces in alpine skiing. **Theory and Practice of Physical Culture** N2, 18-19 (in Russian).

## **B2. Conference Presentations with Proceedings (Refereed)**

9. **Park H, Oh K**, Prilutsky BI, DeWeerth SP\* (2016) A real-time closed-loop control system for modulating gait characteristics via electrical stimulation of peripheral nerves. IEEE Biomedical Circuits and Systems Conference (BioCAS), 95-98.
8. **Harley LR**, Prilutsky BI\* (2013) The effect of the direction of force-fields on transfer of learning between the arms during bimanual reaching. Conf Proc IEEE Eng Med Biol Soc., 2013:6889-6892.
7. **Harley LR**, Prilutsky BI\* (2013) The effect of force feedback on transfer of learning between the arms during bimanual reaching. Conf Proc IEEE Eng Med Biol Soc., 2013:6885-6888.
6. **Harley LR**, Prilutsky BI\* (2012) Transfer of learning between the arms during bimanual reaching. Conf Proc IEEE Eng Med Biol Soc. 2012:6785-6788.
5. Sekimoto M\*, Arimoto S, Prilutsky BI, Isaka T, Kawamura S (2009) Observation of human multi-joint arm movement from the viewpoint of a Riemannian distance. Proceedings of the ICROS-SICE International Joint Conference 2009 (ICCAS-SICE2009), pp. 2664- 2669. Fukuoka, Japan, Aug. 18-21, 2009.
4. Bottasso CL\*, **Croce A, Sartirana S**, Prilutsky BI (2005) A method for inferring the optimization cost function of experimentally observed motor strategies. Proceedings of ASME International Design Engineering Conference / Computer and Information in Engineering Conference. Long Beach, California, USA, September 24-29. Technical Manuscript.
3. Prilutsky BI\*, **Petrova LN**, Raitsin LM, Poltorapavlov NV (1990) Stochastic simulation for estimation of sensitivity of a human body model to errors in input parameters. In Proceedings of the 2nd All-Union Seminar-Clinics 'Perspectives of occupational biomechanics' (Aruin AS, Ed.), pp. 188-200. Sebastopol: Institute of Electronic Engineering, USSR Academy of Sciences (in Russian).
2. Raitsin LM, Prilutsky BI\*. Method for estimation of quality of technique and diagnostics of technical mistakes. In Proceedings of International Society of Sport Biomechanics. Biomechanics in Sports V (Tsanouchas L, Ed.), pp. 499-505. Athens, Greece: Hellenic Sports Research Institute.
1. Prilutsky BI\*, Zatsiorsky VM (1986) Two ways of dissipation of mechanical energy and their correlation in human locomotion. In: Proceedings of the International Conference 'Biomechanics in Medicine' (Yanson HA, Ed.). Vol. 3, pp. 294-298. Riga: Zinatne (in Russian).

## **B3. Other Refereed Material**

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No data

#### **B4. Submitted Journal Articles**

2. Krasnisky BJ, Kowalski DP, Ollivier-Lanvin K, Reiners DJ, Prilutsky BI, Lemay MA\*. Reflex and functional responses to distal tibial/medial plantar nerve electrical stimulation in the treadmill-locomoting spinal cat. **Journal of Neurophysiology**.
1. Turgay A\*, **Klishko AN, Hanson CE, Rahmati SM, Park H**, Prilutsky BI\*. Postural stability during locomotion is species-specific and dependent on limb posture. **Journal of Experimental Biology** (in revision).

#### **C. Other Publications and Creative Products**

12. Prilutsky BI (1991) Eccentric muscle actions during human locomotion. PhD dissertation, Latvian Research Institute of Traumatology and Orthopedics, Riga, former USSR.
11. Zatsiorsky VM, **Petrova LN**, Prilutsky BI\* (1991) Methods of data filtering and differentiation in biomechanics. Monograph, 64 pages. Moscow: Central Institute of Physical Culture (in Russian).
10. Prilutsky BI (1991) Mathematical computer modeling of human movements (description of the model and software). Monograph, 50 pages. Moscow: Central Institute of Physical Culture (in Russian).
9. Zatsiorsky VM, Prilutsky BI\* (1991) Muscle forces in sports locomotion. Monograph, 68 pages. Moscow: Central Institute of Physical Culture (1991) (in Russian).
8. Prilutsky BI\* (1991) BASIC programming (with examples of the use in sport). Monograph, 71 pages. Moscow: Central Institute of Physical Culture (in Russian).
7. Aruin AS, Zatsiorsky VM, Prilutsky BI\* (1988) Muscle Morphometry. Monograph, 92 pages. Moscow, Central Institute of Physical Culture (in Russian).
6. Zatsiorsky VM, Prilutsky BI\* (1986) Biomechanics of negative work. Monograph, 64 pages. Moscow: Central Institute of Physical Culture (in Russian).
5. Zatsiorsky VM, Prilutsky BI\* (1986) Physiology of negative work. Monograph, 52 pages. Moscow: Central Institute of Physical Culture (in Russian).
4. Aruin AS\*, Zatsiorsky VM, Prilutsky BI (1986) Muscle morphometry in biomechanics of locomotion. Manuscript No 6530-B, 92 pages. Moscow, VINITI (in Russian).
3. Zatsiorsky VM\*, Kaimin MA, Prilutsky BI, Mikchailov NG, Vershinskas R, Seluyanov VN (1985) Biomechanics of sports requiring endurance. Monograph, 36 pages. Moscow: Central Institute of Physical Culture (in Russian).
2. Zatsiorsky VM\*, Kaimin MA, Lazarenko TP, Mikchailov NG, Prilutsky BI (1985) Applied calculations and graphics in biomechanics, and programmed quizzes for sports biomechanics. Supplemental teaching material, 36 pages. Moscow: Central Institute of Physical Culture (in Russian).
1. Zatsiorsky VM, Prilutsky BI\* (1984) Biomechanical aspects of balance in humans under external impact forces. Monograph, 49 pages. Moscow: Central Institute of Physical Culture (1984) (in Russian).

#### **D. Presentations**

##### **D1. Invited presentations at conferences and workshops**

25. Prilutsky BI (2024) Contributions of musculoskeletal mechanics to neural control of rhythmic movements. Neuromechanics Workshop. May 6-8, 2024. Chambéry, Switzerland.
24. Prilutsky BI (2020) Atypical patterns of locomotor activity in the cat: Role of CPG and motion-related sensory feedback. **International Virtual Workshop on Motor Control**. October 26-29, 2020. Case Western Reserve University and University of Cologne, Germany.

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23. Prilutsky BI (2019) Neuromechanical modeling of locomotion: A tool for understanding muscle and kinematic synergies. **6<sup>th</sup> International Autumn School on Movement Science**, October 7-11, 2019. Berlin, Germany.
22. Prilutsky BI, **Klishko AN**, Markin SN, Rybak IA, Gerasimenko YP, Musienko PE, Zelenin PV, Deliagina TG (2018) The origin of muscle synergies during intact and decerebrate cat locomotion revealed by a neuromechanical model of spinal locomotor control. **8th World Congress of Biomechanics**, 8-12 July, 2018. Dublin, Ireland
21. Prilutsky BI (2017) Organization of neural control revealed by optimization: When “good-enough” isn’t enough. **Progress in Motor Control XI**. July 19-22, 2017. Miami, USA.
20. Prilutsky BI (2016) Strategies to maintain static and dynamic lateral stability during locomotion in the cat. Satellite Symposium “Neural mechanisms underlying falls and impaired balance: an introspective from animal to patient” at the **Congress of the International Society of Electrophysiology and Kinesiology**. July 5-8, 2016. Chicago, IL, USA.
19. Prilutsky BI, **Farrell BJ**, **Jarrell J**, Kistenberg RS, Dalton JF IV, Pitkin M (2015) Adaptation of bone-anchored limb prosthesis for locomotor behaviors. **Biomechanics and Implant Design. International Conference and Expo**. July 27-29, 2015. Florida, USA.
18. Prilutsky BI (2013) An animal model to study skin-implant-bone integration and gait with limb-integrated prostheses. **Research Symposium. Pennsylvania State University**, 2013. USA.
17. Prilutsky BI. Effect of pore size, implantation time and nano-surface properties on rat skin (2012) **Fourth International Conference: Advances in Orthopaedic Osseointegration**, 2012, San-Francisco, USA.
16. Prilutsky BI (2012) Evaluation of skin and bone integration with a porous titanium pylon after prosthetic gait and rehabilitation in the cat. **Fourth International Conference: Advances in Orthopaedic Osseointegration**, 2012. San-Francisco, USA.
15. Prilutsky BI, **Klishko AN**, Cofer D, Cymbalyuk G, Edwards DH Jr (2012) One CPG, two different rhythmic behaviors: Slow walking and fast paw shake. **Workshop ‘Dynamics of rhythm generation’. Computational Neuroscience Symposium**, 2012. Atlanta, USA [*Invited speaker*].
14. Prilutsky BI, **Klishko AN**, Cofer D, Cymbalyuk G, Gregor RJ, Edwards DH Jr (2011) Mechanics and neural control of paw shake response. **Annual Meeting of Society for the Neural Control of Movement**, 2011. San Jose, Puerto Rico.
13. Prilutsky BI, Markin SN, Lemay MA, McCrea MA, Rybak IA (2010) Motor synergies involved in cat hindlimb control during fictive and normal locomotion: A comparative study. **Satellite Symposium on Motor Systems. Annual Society for Neuroscience Meeting**, 2010. San Diego, USA.
12. Prilutsky BI (2010) Motor control in the upper extremity and its implications for neurorehabilitation. **North American Neurorehabilitation Symposium**. 2010. Shepherd Center, Atlanta, USA.
11. **Klishko AN**, Bottasso CL, Prilutsky BP (2010) Is movement strategy during cat paw shake response optimal? **Symposium ‘Motor Control – The Distribution Problem’. VI World Congress of Biomechanics**. 2010. Singapore.
10. **Klishko AN**, Prilutsky BI (2010) Firing rates of cat muscle Ia, Ib, II and paw cutaneous afferents during walking computed using a musculoskeletal hindlimb model. **Atlanta Computational Neuroscience Conference**. 2010. Georgia State University, Atlanta, USA.
9. Prilutsky BI, Klishko A, Cofer D, Cymbalyuk G, Edwards D (2008) Role of spinal pattern generator, stretch reflex and muscle properties in the cat paw shake response: A simulation study. **Atlanta Computational Neuroscience Conference**. 2008. Georgia State University, Atlanta, USA.

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8. Prilutsky BI, Rybak IA, McCrea D (2007) Modeling the spinal CPG and neural control of locomotion. **Third Computational Motor Control Workshop**. 2007. Ben-Gurion University of the Negev. Israel.
7. Prilutsky BI, Gregor RJ (2005) Effects of ankle extensor self-reinnervation on mechanics of walking. **International Mini-Symposium ‘New Advances in Neural Control of Locomotion’**. 2005. Atlanta, USA.
6. Ivashko D., Prilutsky BI, Chapin JK, Rybak IA (2002) Modeling neural control of hindlimb movement during cat locomotion. **Satellite Symposium ‘Advances in Computational Motor Control’**. **Annual Society for Neuroscience Meeting**. 2002. Orlando, USA.
5. Prilutsky BI, Zatsiorsky VM (2002) Mechanical energy transfer between adjacent joints by two-joint muscles. **Satellite Symposium on Mechanics and Energetics of Locomotion. IV World Congress of Biomechanics**. 2002. Calgary, Canada.
4. Prilutsky BI (2000) Functional significance of muscle coordination in locomotion with submaximal speeds: Reduction of muscle stress, energy expenditure and fatigue. **Satellite Symposium ‘From Molecules to Muscles: Function of Muscle Systems during Movement’**. **Annual Meeting of Society for Experimental Biology**. 2000, Exeter, UK.
3. Prilutsky BI (1996) Coordination of two- and one-joint muscles in static and dynamic tasks: functional consequences. **Satellite Symposium ‘Biarticular Muscles: Biomechanics and Neural Control’**. **Annual Meeting of the American Society of Biomechanics**. 1996. Atlanta, USA.
2. Prilutsky BI (1995) Biomechanical features of the organization of highly skilled locomotor movements. **Annual Meeting of the American Society of Biomechanics**. 1995. Stanford University, USA.
1. Prilutsky BI, Poltorapavlov NV, Raitsin LM. Muscle activity and motor skills (1992) **Olympic Scientific Congress**. 1992, Malaga, Spain.

## **D2. Invited presentations at universities**

22. Prilutsky BI (2021) Central and peripheral control of muscle synergies during locomotion. **Dalhousie University, Canada**.
21. Prilutsky BI (2020) Biomechanics and control of two-joint muscles. **University of Southern California, Los Angeles, CA, USA**.
20. Prilutsky BI (2019) Central and peripheral mechanisms of locomotor control: Implications for spinal cord injury and treatment. **Truett McConnell University, Georgia, USA**.
19. Prilutsky BI (2018) Origins of muscle synergies during cat locomotion revealed by a neuromechanical model of spinal locomotor control: Effects of epidural spinal stimulation. **Texas A&M University**.
18. Prilutsky BI (2018) Sensory mechanisms of motor recovery after peripheral nerve injury, spinal cord injury and limb amputation. **Pavlov Institute of Physiology, St. Petersburg, Russia**.
17. Prilutsky BI (2017) Central and peripheral mechanisms of locomotor control. **MOVE Research Institute, VU University, Amsterdam, Netherlands**.
16. Prilutsky BI (2009) Biomechanics and control of locomotion. **Department of Kinesiology, Penn State University**.
15. Prilutsky BI (2007) Paw shake in the cat: mechanics and neural control. **Department of Biology, Northeastern University, USA**
14. Prilutsky BI (2007) What do we optimize when select activity of individual muscles to perform a skilled motor task? **Department of Mathematics, Georgia Institute of Technology, USA**.
13. Prilutsky BI (2006) Neural control of paw-shake in the cat. **Barrow Neurological Institute, Phoenix, USA**.

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12. Prilutsky BI (2006) Mechanics of paw-shake in the cat. **Department of Kinesiology, Arizona State University**, Phoenix, USA.
11. Prilutsky BI (2002) Mechanisms of gait transitions in humans. **Department of Kinesiology, Pennsylvania State University**, USA.
10. Prilutsky BI (2002) Relationship between full-body mechanics and motor cortex activity. **Department of Movement Science. Free University of Amsterdam**, The Netherlands.
9. Prilutsky BI (2001) Functional significance of muscle coordination in human walking, running and cycling. **Department of Bioengineering. Drexel University**, USA.
8. Prilutsky BI (2000) Mechanical functions and functional significance of two-joint muscles. **Department of Robotics, Ritsumeikan University**, Japan.
7. Prilutsky BI (1998) Force-sharing among muscles in skilled tasks. **Department of Health. University of Bath**, UK.
6. Prilutsky BI (1995) Force-sharing among ankle extensors in the cat. **Department of Physiology. Emory University School of Medicine**, USA.
5. Prilutsky BI (1995) Biomechanical aspects of skilled motor performance. **Teachers College, Columbia University**, USA.
4. Prilutsky BI (1995) Force-sharing among muscles in skilled tasks. **Department of Kinesiology, Pennsylvania State University**, USA.
3. Prilutsky BI (1993) Stereotypic muscle force patterns in cat ankle extensors during locomotion. **Department of Physiology. Rush-Presbyterian St. Luke's Medical Center**, Chicago, USA
2. Prilutsky BI (1990) Mechanical actions of two-joint muscles during human locomotion. **Institute of Mechanics, Moscow State University**, Russia.
1. Prilutsky BI (1986) Eccentric muscle action and negative work in human movements. **Moscow Physiological Society**, Russia.

### **D3. Contributed presentations at conferences**

121. **Hanson CE, Klishko An, Oh K, Mehta-Desay R**, Akay T, Prilutsky BI. Length-dependent sensory feedback from proximal hindlimb muscles contributes to balance control during cat locomotion. Annual Society for Neuroscience. 5-9 October 2024. Chicago, IL.
120. **Klishko AN, Hanson CE**, Rybak IA, Frigon A, Prilutsky BI. Effects of spinal transection and treadmill speed on muscle synergies of the cat hindlimb during locomotion. Annual Society for Neuroscience. 5-9 October 2024. Chicago, IL.
119. Prilutsky BI, **Klishko AN, Hanson CE**, Harnie J, Rybak IA, Frigon A Hindlimb muscle synergies during split-belt locomotion in the cat: Implications for CPG pattern formation organization. FENS Forum 2024. 25-29 June 2024. Vienn, Austria.
118. Rybak IA, Shevtsova NA, Audet J, Yassine S, Markin SN, Prilutsky BI, Frigon A. Organization and operation of spinal circuits. Insights from computational modeling of tied- and split-belt treadmill locomotion in intact and spinal cord-injured cats. **Annual Meeting of Society for Neuroscience**. November 9-15, 2023. Washington, DC.
117. Akay T, **Klishko AN**, Prilutsky BI. Role of proprioceptive feedback from muscle spindles in lateral postural stability during mouse locomotion. **Annual Meeting of Society for Neuroscience**. November 9-15, 2023. Washington, DC.

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116. **Rahmati SM, Klishko AN**, Markin SN, Shevtsova N, Frigon A, Rybak IA, Prilutsky BI. Hindlimb musculoskeletal structure and mechanical demands of locomotion determine basic organization of spinal locomotor networks in the cat. **Annual Meeting of Society for Neuroscience**. November 9-15, 2023, Washington, DC.
115. Prilutsky BI, Parker J, Cymbalyuk GS, **Klishko AN**. Simple neural control of complex cat paw shaking response: Insights from behavioral and computational experiments. Motor Control: Spinal Circuits and Beyond. June 20-20, 2023. University of St Andrews, Scotland.
114. **Rahmati SMA, Klishko AK**, Martine RS, Bunderson NE, Nichols TR, Rybak IA, Frigon A, Burkholder T, Prilutsky BI. The role of forelimb muscle morphology in muscle motor and sensory function during locomotion in the cat. **Annual Meeting of Society for Neuroscience**. November 12-15, 2022. San Diego, CA.
113. Akay T, **Klishko AN, Park H**, Prilutsky BI (2022) Comparison of lateral dynamic stability between walking cats and wild-type mice. **FENS Forum 2022, International Neuroscience Conference**, July 9-13 2022, Paris.
112. Prilutsky BI, Parker J, Cymbalyuk GS, **Klishko AN** (2022) Neural control and biomechanics of cat paw shake response. **FENS Forum 2022, International Neuroscience Conference**, July 9-13 2022, Paris.
111. Prilutsky BI, **Park H, Oh K**, Dalton JF, DeWeerth SP, Pitkin M, Klishko AN (2019) Bidirectional control of a sensing powered transtibial prosthesis during walking in the cat. **Annual Meeting of Society for Neuroscience**, 2019. Chicago, IL.
110. Pitkin M, **Jarrell JR, Park H, Farrell BJ**, Dalton JF IV, Childers LW, Temenoff JS, **Oh K**, Klishko AN, Prilutsky BI (2019) Animal studies of the skin and bone integrated pylon with deep porosity for bone-anchored limb prosthetics with and without neural interface. **Military Health System Research Symposium**, August 19-22, 2019. Kissimmee, FL.
108. Prilutsky BI, Markin SN, Rybak IA, Zelenin PV, Deliagina TG, Gerasimenko YP, Musienko PE, Klishko AN (2019) Modeling hindlimb elevation angles during intact locomotion and locomotion evoked by MLR- and epidural spinal stimulation in decerebrate cats. **28th Annual Computational Neuroscience Meeting**, Barcelona, Spain. July 13-17, 2019.
107. Klishko AN, Markin SN, Rybak IA, Prilutsky BI (2019) Contribution of Biomechanical and Neural Constraints to Planar Covariation of Cat Hindlimb Elevation Angles. **XXVII Congress of the International Society of Biomechanics**. July 31-August 4, 2019. Calgary, Canada.
106. Childers LW, **Jarrell JR**, Klishko AN, **Park H, Oh K, Grant CN, Jeffers MK**, Herrin KR, Dalton JF IV, Pitkin M, Prilutsky BI (2019) **XXVII Congress of the International Society of Biomechanics**. July 31-August 4, 2019. Calgary, Canada.
105. Klishko AN, Markin SN, Shevtsova NA, Lemay MA, Rybak IA, Prilutsky BI (2018) Muscle synergies involved in control of locomotion in the cat: Insights from a computational neuromechanical model. **Annual Meeting of Society for Neuroscience**, 2018. San Diego, CA.
104. **Oh K**, Klishko AN, **Zuniga D**, English AW, Gregor RJ, Prilutsky BI (2018) Stretch reflex removal from ipsilateral hamstrings, quadriceps and sartorius reduces joint ranges of motion and increases leg length bilaterally during level walking in the cat. **Annual Meeting of Society for Neuroscience**, 2018. San Diego, CA.
103. Klishko AN, **Oh K**, Nichols TR, Gregor RJ, Prilutsky BI (2017) Effects of stretch-reflex removal from ankle and knee extensors on mechanics and EMG activity during locomotion in the cat. **Annual Meeting of Society for Neuroscience**. Washington, DC.



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102. **Park H, Islam MS**, Grover MA, DeWeerth SP, Prilutsky BI (2017) Closed-loop control of a transtibial prosthesis with active ankle joint and sensory feedback. **Annual Meeting of Society for Neuroscience**. Washington, DC.
101. **Latash EM, Park H**, Barnett W, Klishko AN, Prilutsky BI, Molkov Y (2017) Frontal plane dynamics of quadrupedal locomotion on a split-belt treadmill. **Annual Meeting of Society for Neuroscience**. Washington, DC: Society for Neuroscience.
100. **Latash EM, Park H**, Barnett W, Klishko AN, Prilutsky BI, Molkov Y (2017) Frontal plane dynamics of quadrupedal locomotion on a split-belt treadmill. **Progress in Motor Control XI**. July 20-22 2017, Miami, FL.
99. **Parker J**, Klishko AN, Prilutsky BI, Cymbalyuk G (2017) Cat paw-shaking as a transient response to sensory input to locomotion CPG. **26<sup>th</sup> Annual Computational Neuroscience Meeting**. July 15-20, 2017. Antwerp, Belgium.
98. **Farrell BJ, Hicks J, McCook K**, Kistenberg R, Dalton J IV, Prilutsky BI (2017) Design considerations for a direct muscle actuated prosthesis. **Annual meeting of the American Academy of Orthotists and Prosthetists**. Chicago, IL.
97. **Jarrell JR, Farrell BJ**, Kistenberg RS, Dalton JF, Pitkin M, Prilutsky BI (2017) Kinetics of quadrupedal level and slope walking in the cat with a unilateral transtibial prosthesis anchored to the bone via a porous titanium pylon. **7<sup>th</sup> International Conference Advances in Orthopaedic Osseointegration**. Coronado, CA.
96. **Jarrell JR, Farrell BJ**, Kistenberg RS, Dalton JF, Pitkin M, Prilutsky BI (2016) Cat Level and Slope Walking with a Transtibial Osseointegrated Prosthesis. **First International Symposium on Innovations in Amputation Surgery and Prosthetic Technologies**. May 12-13, Chicago, IL.
95. Green J, **Klishko AN**, Prilutsky BI, Cymbalyuk GS (2016) Temporal characteristics of paw shake response in the cat. In: **Annual Meeting of Society for Neuroscience**. San Diego, CA: Society for Neuroscience.
94. **Park H, Oh K**, Prilutsky BI, DeWeerth SP (2016) A real-time closed-loop control system for modulating gait characteristics via electrical stimulation of peripheral nerves. In: **IEEE 2016 Biomedical Circuits & Systems Conference**. Shanghai, China.
93. **Park H, Mehta R**, DeWeerth SP, Prilutsky BI (2016) Modulation of input from paw cutaneous afferents and quadriceps-sartorius stretch afferents differentially affects lateral static and dynamic stability during cat split-belt locomotion. In: **Annual Meeting of Society for Neuroscience**. San Diego, CA: Society for Neuroscience
92. **Oh K**, Prilutsky BI (2016) Accuracy of arm position sense in sighted and visually-impaired people. In: **Annual Meeting of Society for Neuroscience**. San Diego, CA: Society for Neuroscience. Online.
91. **Klishko AN**, Lemay MA, Beloozerova IN, Markin SN, Rybak IA, Prilutsky BI (2016) Planar covariation of hindlimb elevation angles is present during walking of intact and spinal cats and in simulated locomotion of a neuromechanical model. In: **Annual Meeting of Society for Neuroscience**. San Diego, CA.
90. **Oh K**, Prilutsky BI (2015) Proximal and distal coding of sensorimotor parameters in the control of arm movements. Poster presentation by Oh. **Annual Meeting of Society for Neuroscience**, Chicago, IL.
89. Regnery K, **Natraj N, Oh K**, Prilutsky BI, Wheaton L, Mizelle JC (2015) Proximal and distal coding of sensorimotor parameters in the control of arm movements. Poster presentation by Regnery. **Annual Meeting of Society for Neuroscience**, Chicago, IL.

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88. **Klishko AN**, Markin SN, Shevtsova NA, Lemay MA, Rybak IA, Prilutsky BI (2015) Computer simulations of slope walking in the cat: Role of supraspinal input to extensor interneurons. Poster presentation by Klishko. **Annual Meeting of Society for Neuroscience**, Chicago, IL.
87. **Pantall A**, Kiupel M, Gregor RJ, Prilutsky BI (2015) Changes in muscle fiber type in plantar flexors after transection and repair of feline soleus and lateral gastrocnemius nerves. Poster presentation by Pantall. **Annual Meeting of Society for Neuroscience**, Chicago, IL.
86. Krupka AJ, Higgin D, Prilutsky BI, **Klishko NA**, Rybak IA, Lemay MA (2015) Comparing the contribution of length and force feedback to ankle extension during stance in the treadmill trained spinal cat. Poster presentation by Krupka. **Annual Meeting of Society for Neuroscience**, Chicago, IL.
85. **Park H**, **Mehta R**, DeWeerth SP, Prilutsky BI (2005) Modulation of afferent feedback from paw pad afferents affects interlimb coordination and adaptation to split-belt treadmill locomotion in the cat. Poster presentation by Park. **Annual Meeting of Society for Neuroscience**, October 2015. Chicago, IL.
84. Prilutsky BI, Akyildiz A, **Mehta R**, **Klishko AN** (2015) Cat hindlimb muscle synergies during slope walking: Possible contributions of CPG and sensory feedback. Poster presentation by Prilutsky and Klishko, **Annual Meeting of Society for the Neural Control of Movement**, April 2015. Charleston NC.
83. **Bondy B**, **Klishko AN**, Prilutsky BI, Cymbalyuk G (2014) Multifunctional central pattern generator controlling walking and paw shaking. Poster presentation by Bondy, **Twenty Third Annual Computational Neuroscience Meeting**, July 2014. Québec City, Canada.
82. **Oh K**, Prilutsky BI (2014) Precision of arm position sense strongly depends on arm configuration. Poster presentation by Oh, **Annual Meeting of Society for Neuroscience**, Washington DC.
81. Markin SN, **Klishko AN**, Shevtsova NA, Lemay MA, Prilutsky BI, Rybak IA (2014) Removal of ankle extensors group Ia and Ib afferent feedback differentially affects walking mechanics and muscle activity in the cat: A computer simulation study. Poster presentation by Markin, **Annual Meeting of Society for Neuroscience**, October 2014. Washington DC.
80. **Bonby B**, **Klishko AN**, Prilutsky BI, Cymbalyuk GS (2014) Multifunctional half-center oscillator controlling walking and paw-shake response in the cat. Poster presentation by Bondy, **Annual Meeting of Society for Neuroscience**, October 2014. Washington DC.
79. **Mehta R**, **Kajtaz E**, Gregor RJ, Prilutsky BI (2014) Effects of stretch-reflex removal by self-reinnervation of one-joint vastii and two-joint rectus femoris on hindlimb muscle activity and mechanics during walking in the cat. Poster presentation by Mehta and Kajtaz, **Annual Meeting of Society for Neuroscience**, October 2014. Washington DC.
78. **Pantall A**, Gregor RJ, **Mehta R**, Prilutsky BI (2014) Effects of 60-min sciatic nerve stimulation immediately after cut and repair of feline soleus and lateral gastrocnemius nerves on locomotor EMG activity of ankle muscles. Poster presentation by Pantall, **Annual Meeting of Society for Neuroscience**, October 2014. Washington DC.
77. Gregor RJ, **Bulgakova M**, **Maas H**, Oliver A, Prilutsky BI (2014) Locomotor activity of feline ankle extensors and kinematics during level and slope walking after removal of stretch reflex from soleus and lateral gastrocnemius by self-reinnervation. Poster presentation by Gregor, **Annual Meeting of Society for Neuroscience**, October 2014, Washington DC.
76. **Mehta R**, **Maas H**, Gregor RJ, Prilutsky BI (2014) Muscle fascicle shortening in denervated feline soleus muscle during stance phase of walking. Poster presentation by Mehta, **World Congress of Biomechanics**, July 2014. Boston MA.

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75. **Jarrell J, Farrell BJ**, Kistenberg R, Dalton JF, Pitkin M, Prilutsky BI (2014) Hindlimb kinetics of upslope, downslope, and level walking in the cat with a trans-tibial osseointegrated prosthesis. Poster presentation by Jarrell, **World Congress of Biomechanics**, July 2014. Boston MA.
74. Prilutsky BI, **Klishko AN**, Weber DJ, and Lemay MA (2013) Activity of muscle and paw-skin afferents during cat locomotion computed using a forward dynamics neuromechanical model. Podium presentation by Prilutsky, **XXIV Congress of International Society of Biomechanics**, August 2013. Natal, Brazil.
73. **Farrell BJ**, Prilutsky BI, Kistenberg RS, Dalton JF, IV, Strong A, Pitkin M (2013) An animal model to study skin-implant-bone integration and prosthetic gait with limb prostheses directly attached to the residual limb. Poster presentation by Prilutsky, **XXIV Congress of International Society of Biomechanics**, August 2013. Natal, Brazil.
72. **Pantall A**, Gregor RJ, Prilutsky BI (2013) Feline soleus and lateral gastrocnemius self-reinnervation results in increased ankle extensor activity but no change in ankle extensor moment during upslope locomotion. Podium presentation by Pantall, **Annual Meeting of Meeting of American Society of Biomechanics**, September 2013. Omaha, Nebraska.
71. **Klishko AN**, Lemay MA, Latash ML, Gregor RJ, and Prilutsky BI (2013) Stabilization of cat paw trajectory during locomotion after denervation and self-reinnervation of cat soleus and lateral gastrocnemius muscles. Poster presentation by Klishko, **Annual Meeting of Society for Neuroscience**, November 2013. San Diego CA.
70. **Natraj N**, Borghi AM, Flumini A, Prilutsky BI, Pella YM, Wheaton L (2012) Throwing a spotlight on the perception of a human hand-object action via eye tracking. Poster presentation by Natraj, **Annual Meeting of Society for Neuroscience**, October 2012. New Orleans LA.
69. **Pantall A, Hodson-Tole EF**, Gregor RJ, Prilutsky BI (2012) Changes in relative activity of faster and slower motor unit populations in feline ankle extensors during locomotion following self-reinnervation. Poster presentation by Pantall, **Annual Meeting of Society for Neuroscience**, October 2012. New Orleans LA.
68. **Pantall A, Hodson-Tole EF**, Gregor RJ, Prilutsky BI (2011) Activity changes in motor unit populations in the feline ankle extensors during locomotion following self-reinnervation. Poster presentation by Pantall, **Annual Meeting of Society for Neuroscience**, November 2011. Washington, DC.
67. **Harley LR**, Prilutsky BI (2011) Does transfer of learning occur during bimanual goal oriented reaching tasks? Poster presentation by Harley, **Annual Meeting of Society for Neuroscience**, November 2011. Washington, DC.
66. **Farrell BJ, Bulgakova M**, Sirota MG, Prilutsky BI, Beloozerova IN (2011) Frontal plane mechanics and activity of motor cortex during locomotion tasks with challenging requirements for lateral stability. Poster presentation by Farrell and Bulgakova, **Annual Meeting of Society for Neuroscience**, November 2011. Washington, DC.
65. Markin SN, **Klishko NA**, Shevtsova NA, Lemay MA, Prilutsky BI, Rybak IA (2011) Neuromechanical model of spinal control of locomotion. Poster presentation by Markin and Klishko, **Annual Meeting of Society for Neuroscience**, November 2011. Washington, DC.
64. **Klishko AN**, Cofer D, Cymbalyuk G, Gregor RJ, Edwards DH, Prilutsky BI (2011) Contributions of proprioceptive feedback and CPG to coordination of two-joint muscles during a paw shake response: A computer simulation study. Poster presentation by Klishko, **Annual Meeting of Society for Neuroscience**, November 2011. Washington, DC.
63. **Klishko AN**, Lemay MA, Prilutsky BI (2010) Firing rates of cat hindlimb muscle afferents during walking computed using a musculoskeletal hindlimb model. Poster presentation by Klishko, **Satellite**

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**Symposium on Motor Systems. Annual Meeting of Society for Neuroscience**, November 2010. San Diego, CA.

62. **Klishko AN, Farrell BJ**, Latash ML and Prilutsky BI (2010) Paw trajectories of cat fore- and hindlimbs are stabilized during swing of walking on a flat surface and horizontal ladder. Poster presentation by Klishko, **Annual Meeting of Society for Neuroscience**, November 2010. San Diego, CA.
61. **Spardy LE**, Markin SN, **Klishko AN**, Shevtsova NA, Prilutsky BI, Rybak IA, Rubin JE (2010) A dynamical systems analysis of afferent control in a neuro-mechanical model of locomotion. Poster presentation by Spardy, **Annual Meeting of Society for Neuroscience**, November 2010. San Diego, CA.
60. **Bulgakova M, Farrell BJ**, Gregor RJ, Prilutsky BI (2010) Short-term motor adaptation to denervation of feline selected ankle extensor muscles results in preservation of ankle mechanical output during locomotion. Poster presentation by Bulgakova and Farrell, **Annual Meeting of Society for Neuroscience**, November 2010. San Diego, CA
59. **Klishko AN, Hodson-Tole EF**, Prilutsky BI (2010) Division of labor among limbs and joints of the cat during level and slope walking. Podium presentation by Klishko, **Annual Meeting of Meeting of American Society of Biomechanics**, August 2010. Providence, RI.
58. Spardy L, Markin M, Prilutsky B, Rybak I, Rubin J (2010) A dynamical systems analysis of afferent control in a neuro-mechanical model of locomotion. Podium presentation by Spardy, **Nineteenth Annual Computational Neuroscience Meeting**, July 2010. San Antonio, TX.
57. Lemay MA, Markin SN, **Klishko AN**, Shevtsova NA, Ollivier-Lanvin K, Prilutsky BI, Rybak IA (2009) Afferent neuroplasticity as a possible mechanism for the locomotor recovery seen with neurotrophin transplants: computer simulations. Podium presentation by Lemay, **Biomedical Engineering Society Annual Meeting**, October 2009. Pittsburgh, PA.
56. **Klishko AN**, Markin S, Shevtsova N, Lemay M, Rybak IA, Prilutsky BI (2009) Afferent regulation of locomotor CPG contributes to movement stabilization: a simulation study. Podium presentation by Klishko, **Annual Meeting of Meeting of American Society of Biomechanics**, August 2009. College Park, PA.
55. **Hodson-Tole EF, Maas H**, Gregor RJ, **Farrell BJ**, Prilutsky BI (2009) Patterns of motor unit recruitment in feline ankle extensor muscles during different motor tasks, Podium presentation by Hodson-Tole, **Annual Meeting of Society of Experimental Biology**, June-July 2009. Glasgow, UK.
54. **Farrell BJ, Bulgakova M, Hodson-Tole EF, Shah S**, Gregor RJ, Prilutsky BI (2009) Short-term locomotor adaptations to denervation of lateral gastrocnemius and soleus muscles in the cat. Poster presentation by Farrell, **Annual Meeting of Society for Neuroscience**, October 2009. Chicago, IL.
53. Markin SN., **Klishko AN**, Shevtsova NA, Lemay M, Ollivier-Lanvin K, Prilutsky BI, Rybak IA (Oct 2009) Role of afferent feedback in the recovery of locomotor activity after SCI: Insights from a simple neuromechanical model. Poster presentation by Markin, **Annual Meeting of Society for Neuroscience**, October 2009. Chicago, IL.
52. Ollivier-Lanvin K, Krupka AJ, Yong NAu, Prilutsky BI, Lemay MA (2009) Electrical stimulation of the sural cutaneous afferent nerve to control the timing and amplitude of the swing phase in locomotor trained spinal cats. Poster presentation by Ollivier-Lanvin, **Annual Meeting of Society for Neuroscience**, October 2009. Chicago, IL.
51. **Hodson-Tole EF**, Gregor RJ, Maas H, Prilutsky BI (2008) Time varying motor unit recruitment patterns in feline ankle extensor muscles during level and slope walking. Poster presentation by Hodson-Tole, **Annual Meeting of Society for Neuroscience**, November 2008. Washington, DC.

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50. **Farrell BJ**, Stout EE, Sirota MG, Beloozerova IN, Prilutsky BI (2008) Accurate target stepping in the cat: the full-body mechanics and activity of limb muscles. Poster presentation by Farrell, **Annual Meeting of Society for Neuroscience**, November 2008. Washington, DC.
49. **Klishko AN**, Prilutsky BI, Cofer D, Cymbalyuk G, Edwards DH (2008) Interaction of CPG, spinal reflexes and hindlimb properties in cat paw shake: A computer simulation study. Poster presentation by Klishko, **Annual Meeting of Society for Neuroscience**, November 2008. Washington, DC.
48. Markin SN, Lemay MA, Ollivier-Lanvin K, Prilutsky BI, McCrea DA, Rybak IA (2008) Comparison of hindlimb motoneuron activities during fictive and normal locomotion in the cat. Poster presentation by Markin, **Annual Meeting of Society for Neuroscience**, November 2008. Washington, DC.
47. **Klishko A**, Cofer D, Edwards D, Prilutsky BI (2008) Extremely high paw accelerations during paw shake in the cat: A mechanism revealed by computer simulations. Podium presentation by Klishko, **American Physical Society Meeting**, March 2008. New Orleans, LA.
46. Prilutsky BI, **Klishko AN** (2008) Is movement organization in cat paw shake response optimal? Podium presentation by Prilutsky, **American Physical Society Meeting**, March 2008. New Orleans, LA.
45. Ollivier-Lanvin K, Au Yong N, Prilutsky BI, Lemay MA (2007) Effects of electrical stimulation of cutaneous afferent nerves on the hindlimb locomotion of spinal cats. Poster presentation by Ollivier-Lanvin, **Annual Meeting of Society for Neuroscience**, November 2007. San Diego, CA.
44. Prilutsky BI, **Klishko AN** (Nov 2007) Activity of muscle spindle and tendon organ afferents during cat locomotion computed using a musculoskeletal model. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, November 2007. San Diego, CA.
43. Markin SN, Griffel B, Lemay MA, Prilutsky BI, McCrea DA, Rybak IA (2007) Analysis of hindlimb motoneuron activity during fictive locomotion in cat and identification of possible motor synergies controlled by locomotor CPG. Poster presentation by Markin, **Annual Meeting of Society for Neuroscience**, November 2007. San Diego, CA.
42. **Klishko AN**, Prilutsky BI (2007) Stabilization of locomotion by a musculoskeletal model of cat hindlimbs with Hill-type actuators. Poster presentation by Klishko, **Annual Meeting of American Society of Biomechanics**, September 2007. Palo Alto, CA.
41. **Larkins D**, Prilutsky BI, **Maas H**, Gregor RJ (2007) Slope locomotion and activity of cat gastrocnemius muscle after peripheral nerve injury. Poster presentation by Larkins, **South East Regional Conference of American Society of Biomechanics**, Duke University, NC.
40. **Farrell BJ**, Beloozerova I, Prilutsky BI (Apr 2007) Full-body kinematics during precise stepping in the cat. Poster presentation by Farrell, **South East Regional Conference of American Society of Biomechanics**, April 2007. Duke University, NC.
39. Prilutsky BI, **Klishko AN**, **Ivashko DG** (2007) A musculoskeletal model of the cat hindlimbs for computing proprioceptive signals during cat locomotion. Poster presentation by Prilutsky, **Third Computational Motor Control Workshop**. June 2007. Ben-Gurion University of the Negev. Israel.
38. Prilutsky BI, **Maas H**, Gregor RJ (2006) Stabilization of locomotion by a musculoskeletal model of cat hindlimbs with Hill-type actuators. Poster presentation by Prilutsky, **Annual Meeting of American Society of Biomechanics**, September 2006. Blacksburg, VA.
37. Prilutsky BI, **Maas H**, Nichols TR, Gregor RJ (2006) Effects of self-reinnervation of selected cat ankle extensors on their activity and hindlimb mechanics in slope walking. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, October 2006. Atlanta, GA.

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36. Bottasso CL, **Croce A, Sartirana S**, Prilutsky BI (2005) A numerical procedure for identifying from experimental data the optimization cost function of the neuro-musculoskeletal system. Podium presentation by Bottasso, **European Conference on Multibody Dynamics**, June 2005. Madrid, Spain.
35. Gregor RJ, Prilutsky BI, Smith W (2005) Mechanics of slope walking in the cat: insights into afferent control of activity pattern generation. Poster presentation by Prilutsky, **Society of Experimental Biology Meeting**, April 2005. San Diego, CA.
34. Prilutsky BI, Maas H, Gregor RJ (Sept 2005) In vivo fascicle velocity of cat gastrocnemius and soleus muscles during the paw-shake. Podium presentation by Prilutsky, **XX Congress of International Society of Biomechanics**, September 2005. Cleveland, OH.
33. **Maas H**, Prilutsky BI, Gregor RJ (2005) In vivo fascicle velocity of cat gastrocnemius and soleus muscles during the paw-shake. Podium presentation by Prilutsky, **XX Congress of International Society of Biomechanics**, Cleveland, OH.
32. Sirota MG, Prilutsky BI, Gregor RJ, Beloozerova IN (2005) Full-body kinematics and activity of the motor cortex during precise stepping with different accuracy demands in the cat. Poster presentation by Sirota, **Annual Meeting of Society for Neuroscience**, November 2005. Washington, DC.
31. Prilutsky BI, Sirota MG, Gregor RJ, Beloozerova IN (2005) Comparison of motor cortex activity and full-body biomechanics in unconstrained cat locomotion using principal component and multivariate regression analyses. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, November 2005. Washington, DC.
30. Maas H, Prilutsky BI, Welch T, Gregor RJ (2004) Reinnervation of the gastrocnemius muscle in the cat: immediate and long-term effects in interjoint coordination. Poster presentation by Maas, **Annual Meeting of Society for Neuroscience**, October 2004. San Diego, CA.
29. Prilutsky BI, Gregor RJ, Nichols TR (2004) Coordination of cat ankle extensors during the paw-shake before and after self-reinnervation of medial and lateral gastrocnemius muscles. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, October 2004. San Diego, CA.
28. Prilutsky BI, **Ashley D, Fukuda T**, VanHiel L, Gregor RJ, Isaka T (2003) Control of end-point forces of the arm in individuals with C6-C7 spinal cord injury. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, November 2003. New Orleans, LA.
27. Gregor RJ, Prilutsky BI, Nichols TR, Smith W (2003) EMG output in reinnervated medial gastrocnemius muscle during locomotion in the cat. Poster presentation by Gregor, **Annual Meeting of Society for Neuroscience**, November 2003. New Orleans, LA.
26. Prilutsky BI., Beloozerova, I, Sirota MG, Gregor RJ (2002) Whole-body mechanics and activity of pyramidal tract neurons during locomotion in the cat. Poster presentation by Gregor, **Annual Meeting of Society for Neuroscience**, Orlando, FL.
25. Ivashko DG, Rybak IA, Prilutsky BI, Chapin JK (Nov 2002) Modeling CPG-based neural control of hindlimbs during locomotion in cat. Poster presentation by Ivashko, **Annual Meeting of Society for Neuroscience**, November 2002. Orlando, FL.
24. Rybak IA, Markin SN, Prilutsky BI, Giszter S, Chapin JK (2001) Modeling neural control of locomotion. Poster presentation by Rybak, **Annual Meeting of Society for Neuroscience**, November 2001. San Diego, CA.
23. Prilutsky BI, Gregor RJ (1999) High relative activation may trigger gait transition in humans. Podium presentation by Prilutsky, **XVII Congress of International Society of Biomechanics**, August 1991, Calgary, Canada.

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22. Prilutsky BI, Gregor RJ (1999) The selection of gait – a new paradigm to study motor redundancy. Poster presentation by Prilutsky, **Second International Conference Bernstein's Traditions in Motor Control**, July 1999, Pennsylvania State University, PA.
21. Prilutsky BI (1998) Strategy of muscle coordination during the maintenance of an equilibrium arm posture. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, November 1998. Los Angeles, CA.
20. Prilutsky BI, Gregor RJ, Ryan MM (1998) Activation of rectus femoris and hamstrings in the swing phase of locomotion as a determinant of the gait transition in humans. Poster presentation by Prilutsky, **Third North American Congress on Biomechanics**, August 1998. University of Waterloo, Canada.
19. Prilutsky B I, Herzog W, Allinger TL (1997) Forces of individual cat ankle extensor muscles during locomotion predicted using static optimization. Podium presentation by Prilutsky, **XVI Congress of International Society of Biomechanics**. July 1997. Tokyo, Japan.
18. Prilutsky BI., Isaka T, Albrecht A, Ryan MM, Gregor RJ (1997) Strategy of muscle coordination in a multi-joint dynamic task. Podium presentation by Prilutsky, **XVI Congress of International Society of Biomechanics**. July 1997. Tokyo, Japan.
17. Prilutsky BI, Gregor RJ, Albrecht AM, Ryan MM (1997) Rules of muscle coordination in cycling. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, October 1997. New Orleans, LA.
16. Prilutsky BI, Gregor RJ (1996) Role of two- and one-joint muscles in control of an external force. Poster presentation by Prilutsky, **First International Conference Bernstein's Traditions in Motor Control**, July 1996. Pennsylvania State University, PA.
15. Prilutsky BI, Gregor RJ (1996) Strategy of co-ordination of two-joint rectus femoris and hamstrings muscles during the swing phase in running. Poster presentation by Prilutsky, **Annual Meeting of Society for Neuroscience**, November 1996. Washington, DC.
14. Prilutsky BI, Gregor RJ (1996) Strategy of muscle co-ordination during the control of an external force. Poster presentation by Prilutsky, **Annual Meeting of American Society of Biomechanics**, August 1996. Atlanta, GA.
13. Prilutsky BI, Herzog W, Leonard TR (1995) Mechanical work and peak forces of cat ankle extensor muscles as possible determinants of the gait transition from walking to trotting. Podium presentation by Prilutsky, **XV Congress of International Society of Biomechanics**. June 1995, Jyväskylä, Finland.
12. Prilutsky BI, Herzog W, Leonard TR (1994) Transfer of mechanical energy between ankle and knee joints by cat gastrocnemius and plantaris muscles during walking and trotting. Podium presentation by Prilutsky, **Second World Congress on Biomechanics**. July 1994. Amsterdam, The Netherlands.
11. Prilutsky BI, Petrova LN (1994) Prediction of muscle forces in humans during running using an elimination of redundancy approach. Podium presentation by Prilutsky, **VIII Biennial Conference of Canadian Society for Biomechanics**. July 1994. Calgary, Canada.
10. Prilutsky BI, Herzog W, Leonard TR, Allinger TL (1994) Role of the muscle belly and tendon of cat soleus, gastrocnemius, and plantaris in mechanical energy absorption and generation. Podium presentation by Prilutsky, **VIII Biennial Conference of Canadian Society for Biomechanics**. July 1994. Calgary, Canada.
9. Prilutsky BI, Herzog TR, Leonard TR (1994) Mechanical power and work of cat soleus, gastrocnemius, and plantaris muscles during locomotion: functional significance of muscle design, force and activity patterns. Podium presentation by Prilutsky, **XVIII Annual Meeting of American Society of Biomechanics**. August 1994. Columbus, OH.

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8. Prilutsky BI, **Petrova LM**, Raitsin LM (1994) Comparison of mechanical energy expenditure of different sources of mechanical energy during human locomotion: joint moments vs. muscle forces. Podium presentation by Prilutsky, **XVIII Annual Meeting of American Society of Biomechanics**. August 1994. Columbus, OH.
7. Prilutsky BI (1993) Comparison of mechanical energy expenditure of anthropomorphic locomotion machine and human. Poster presentation by Prilutsky, **XIV Congress of International Society of Biomechanics**. July 1993. Paris, France.
6. Prilutsky BI (1993) Comparison of maximal knee extension power during one-joint isokinetic movement and running long jump. Poster presentation by Prilutsky, **XIV Congress of International Society of Biomechanics**. July 1993. Paris, France.
5. Herzog W, Leonard T, Prilutsky BI (1993) Why is peak soleus force in the cat almost constant at different speeds of locomotion? Poster presentation by Prilutsky, **XIV Congress of International Society of Biomechanics**. Paris, France.
4. Prilutsky BI (Jul 1993) Biomechanical model of musculoskeletal system for analysis of human movements. Podium presentation by Prilutsky, **XIV Congress of International Society of Biomechanics**. July 1993. Paris, France.
3. Prilutsky BI, Herzog W, Allinger TL, Leonard TR (1993) Factors responsible for force-sharing between soleus and gastrocnemius muscles during cat locomotion. Podium presentation by Prilutsky, **XVII Annual Meeting of American Society of Biomechanics**. August 1993. Iowa City, Iowa.
2. Prilutsky BI, Raitsin LM (1993) Is the pattern of muscle activity in humans optimal during walking? Podium presentation by Prilutsky, **XVII Annual Meeting of American Society of Biomechanics**. August 1993. Iowa City, Iowa.
1. Prilutsky BI (1991) Tendon action of two-joint muscles during sports locomotion. Podium presentation by Prilutsky, **Second International Olympic Committee World Congress on Sport Sciences**. October 1991. Barcelona, Spain.

## **E. Grants and Contracts**

### **E1. As Principal Investigator**

#### Currently funded:

- 09/01/2020-08/31/2025, NSF/ECCS 2024414, ‘Intelligent closed-loop neural interface system for studying mechanisms of somatosensory feedback in control of functional and stable locomotion’. PI: Prilutsky. Total costs \$305,999.
- 02/01/2020-01/31/2025, NIH/NINDS R01NS110550, ‘Limb coordination during locomotion before and after spinal cord injury’. PIs: Frigon (Sherbrook University), Prilutsky (Georgia Tech), Rybak (Drexel University). Total costs for Prilutsky \$1,013,569.

#### Previous funding:

- 07/15/2017-05/31/2023, NIH/NINDS R01NS100928, ‘Neural mechanisms of locomotion evoked by epidural stimulation of the spinal cord’. PI Prilutsky. Total costs of \$2,733,901 include \$499,811 to Prilutsky and 3 subcontracts to Markin (Drexel University), Deliagina (Karolinska Institute) and Musienko (Pavlov Institute).
- 04/01/2015-03/31/2019, NIH/NICHD, R21 HD084188, ‘Development of novel muscle actuated prostheses’ PIs Farrell (Georgia State University), Prilutsky (Georgia Tech). Total costs to Prilutsky \$352,014.



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- 04/01/2012-03/31/2018, NIH/NICHD, P01 HD032571, ‘Sensory mechanisms of functional compensation after peripheral nerve injury’, PIs English (Emory University), Nichols (Georgia Tech), Prilutsky (Georgia Tech), Segal (Medical University of South Carolina), Wolpaw (University of New York). Total costs to Prilutsky \$1,155,665.
- 11/01/2010-10/31/2015, NIH/NIBIB, R01 EB012855, ‘Role of sensory feedback in locomotor recovery after spinal cord injury’. PIs Lemay, Markin (Drexel University), Prilutsky (Georgia Tech). Total costs budgeted for Prilutsky \$421,397.
- 05/01/2006-04/30/2011, NIH/NINDS, R01 NS048844, ‘Spinal control of locomotion: Studies and applications’, PIs Rybak and Lemay (Drexel University), McCrea (University of Manitoba), Prilutsky (Georgia Tech). Total costs to Prilutsky \$515,773.

**E2. As Co-Principal Investigator**

No data

Previous funding:

- 10/01/16-03/31/2020 DOD MR150051 (\$464,839 total costs budgeted for Prilutsky, as 1 of 2 Co-PIs (with Project Director Mark Pitkin) “Integration of the Residual Limb with Prostheses via Direct Skin-Bone-Peripheral Nerve Interface”
- 01/1/2016-12/31/2018 The Health Innovation Program and the Atlanta Clinical & Translational Science Institute Seed Grant Program (\$25,000; 1 of 3 co-PIs with Project Director Maysam Ghovanloo) “A Tongue Operated Robotic Rehabilitation System for Upper Extremities”
- 09/1/2011-08/31/2015 NSF EFRI-1137172 (\$316,520 total costs budgeted for Prilutsky, as 1 of 5 co-PIs with Project Director Zhigang Zhu) “Mobility skill acquisition and learning through alternative and multimodal perception for visually impaired people”
- 08/01/2013-07/31/2014 Rothschild Foundation 48366DU (\$38,677 total costs budgeted for Prilutsky; Project PI Jon Sanford) “Determination of grab bar specifications for independent and assisted transfers in residential care settings”
- 09/01/2007-08/31/2012 NIH/NICHD, P01 HD032571 (\$936,770 total costs budgeted for Prilutsky as 1 of 4 co-PIs with Project Director Arthur English) “Sensorimotor control of locomotion after peripheral nerve injury”
- 09/01/2010-08/31/2011 NIH/NICHD, P01 HD032571 - Administrative supplement (\$75,433 direct costs budgeted for Prilutsky as 1 of 4 co-PIs with Project Director Arthur English) “Evaluation of motor unit recruitment before and after nerve injury”
- 08/01/2009-07/31/2011 NIH/NICHD, R44 HD057492 (\$143,263 direct costs budgeted for Prilutsky; Project PI Mark Pitkin) “Manufacturing technology for skin integrated composite prosthetic pylon”

**E3. As Senior Personnel or Contributor**

No data

**E4. Proposals Submitted but not Funded (last 2 years)**

- June 2024 NIH R01: ‘Limb coordination during locomotion before and after spinal cord injury’. PIs: Frigon, Prilutsky, Rybak (Impact score: 23, Percentile: 7.0, Current payline: 8%).
- April 2024 NIH STTR R41/R42: ‘Powered Anthropomorphic Foot Prosthesis with Intuitive Control and Sensation for Direct Skeletal Attachment via Skin and Bone Integrated Pylon’. PI: Ptkin, co-PI: Prilutsky

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- March 2024 NIH R01: ‘Control of SI post-amputation reorganization and phantom limb pain by recovering sensorimotor function with a limb prosthesis integrated with residual muscles and sensory nerves’. PIs: Beloozerova, Favorov, Prilutsky.
- July 2023 NIH R35: ‘Structure and functional demands of the sensorimotor system reveal normal and pathological organization of neural control of movement’. PI Prilutsky
- June 2023 NIH R01: ‘Control of SI post-amputation reorganization and phantom limb pain by recovering sensorimotor function with a limb prosthesis integrated with residual muscles and sensory nerves’. PIs Beloozerova, Favorov, Prilutsky.
- February 2023 NIH R01: ‘Restoration of Locomotion after Thalamic Lesion’. PIs Beloozerova, Prilutsky.

**F. Other Scholarly and Creative Accomplishments**

- Farrell BJ, Prilutsky BI (2011) U.S. Patent Application filed by Georgia Tech (U.S. Provisional Patent #61,430,747). Direct skeletal and muscle prosthesis attachment device.
- Prilutsky BI (1991) USSR/Russia Patent No 1754065 (Russia, MKI 4, A 61 B 5/11, 1991). Method for determination of mass and inertia parameters of human body segments (in Russian).
- Aruin AS, Prilutsky BI (1990) USSR/Russia Patent No 1586680 (USSR, MKI 4, A 61 B 5/103, 1990). Method for determination of stiffness and viscosity of human muscles (in Russian).
- Prilutsky BI, Shafranov EI, Voronov AV (1990) USSR/Russia Patent No 1801354 (USSR, MKI 4, A 61 B 5/103, 1990). Method for determination of moment arm of a muscle (in Russian).
- Aruin AS and Prilutsky BI (1986) USSR/Russia Patent No 1258377 (USSR, MKI 4, A 61 B 5/10, 1986). Apparatus for determination of muscle length change (in Russian).
- Aruin AS, Raitsin LM, Prilutsky BI (1985) USSR/Russia Patent No 1168193 (USSR, MKI 4, A 61 B 5/15, 1985). Method for estimation of biomechanical properties of muscles (in Russian).
- Aruin AS, Prilutsky BI (1985) USSR/Russia Patent No 1222247 (USSR, MKI 4, A 61 B 5/15, 1985). Method for determination of muscle length change (in Russian).

**G. Societal and Policy Impacts**

No data

**H. Other Professional Activities**

No data

**V. Education**

**A. Courses Taught (last 6 years)**

Spring 2025	BIOS 3755 Human Physiology	114 students
Fall 2024	BIOS 4540/APPH 6231 Human Motor Control	20 students
Fall 2023	BIOS 4540/APPH 6231 Human Motor Control	16 students
Spring 2023	BIOS 3755 Human Physiology	134 students
Fall 2022	BIOS 4540/APPH 6231 Human Motor Control	24 students
Fall 2021	BIOS 4540/APPH 6231 Human Motor Control	17 students
Spring 2021	BIOS 3755 Human Physiology	124 students
Fall 2020	BIOS 4540/APPH 6231 Human Motor Control	15 students
Fall 2019	BMED 3100 Systems Physiology	74 students
Spring 2019	BMED 3100 Systems Physiology	60 students

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Fall 2018            APPH 6231/4803 Human Motor Control            19 students

**B. Individual Student Guidance**

**B1. PhD Students**

- 13. Claire Hanson            Ph.D. student (Georgia Tech, Biological Sciences, 2023-present)
- 12. Layla B. Abdullatif    Ph.D. rotating student (Georgia Tech, Biological Sciences, 2021)
- 11. Brian P. Hack            Ph.D. rotating student (Georgia Tech, Biological Sciences, 2021)
- 10. Zhenxuan "James" Zhang    Ph.D. student (Georgia Tech Electrical & Comp Eng, graduated 2020)  
    Currently at Microsoft.
- 9. Min Li            Ph.D. student (Georgia Tech Mechanical Engineering, graduated 2017)  
    [Co-advised with Kok-Meng Lee, Mechanical Eng.]
- 8. Chun-Yeon Lin            Ph.D. student (Georgia Tech Mechanical Engineering, graduated 2017)  
    [Co-advised with Kok-Meng Lee, Mechanical Eng.]
- 7. Hangue Park            Ph.D. student (Georgia Tech Electrical & Comp Eng, graduated 2017)  
    [Co-advised with Steve DeWeerth, Biomedical Eng.]  
    Received Best Poster Award from Korean Society for Neuroscience, 2016.  
    Currently an Assistant Professor at Texas A&M University.
- 6. Kyunggeune (Ted) Oh    Ph.D. student (Georgia Tech AP, graduated 2019)  
    Currently a Postdoc at John Hopkins University.
- 5. Joshua Jarrell    Ph.D. student (Georgia Tech AP, graduated 2017)  
    NIH training grant fellow, fall 2011-summer 2011  
    NSF graduate research fellow, fall 2012-present  
    Keynote speaker at NSF annual Saluting Veterans in STEM symposium, November 5, 2014  
    Annual graduate fellowships program report selected as an NSF Highlight, June 2014
- 4. Ricky Mehta            Ph.D. student (Georgia Tech AP, graduated 2016)  
    Currently a forensic specialist at Travelers
- 3. Zhengqin Fan            Ph.D. student (Georgia Tech AP, 2006-2009)  
    Passed comprehensive exam in spring 2008  
    Took several semesters of Robotics at Georgia Tech and left program in summer 2009  
    Founded and currently managing company Fellow Robots producing consumer robots
- 2. Brad Farrell            Ph.D. student (Georgia Tech AP, graduated 2012)  
    Winner of Georgia Tech Graduate Student Research Symposium travel award, spring 2011  
    NIH training grant fellow, 2009-2011  
    Postdoc at Shephard Center, 2012-2014  
    Assistant Professor at Georgia State University, 2014-2020  
    Currently Research Scientist II, Georgia Tech
- 1. Linda Harley            Ph.D. student (Georgia Tech AP, graduated 2011)  
    Vice President of Georgia Tech Graduate Student Government, 2008-2009  
    President of Georgia Tech Graduate Student Government, 2009-2010  
    Research Scientist II at Georgia Tech Research Institute, fall 2011- spring 2014  
    Currently CEO at Purple Pixie Studio.

**B2. M.S. students**

- 1. Levon Sahakian            Visiting International Student, University of Twente, The Netherlands, Summer 2015

**B3. Undergraduate Students**

- 51. Michael Xu, Georgia Tech, Computer Science, 2024-present
- 50. Sheeya Amin, Georgia Tech, Neuroscience, 2024-present

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49. Christina Hoang, Georgia Tech, Biological Sciences, 2024-present  
Presidential Undergraduate Research Award, 2025
48. Ashley Nguyen, Georgia Tech, Neuroscience, 2023-2025
47. Ateendra Subramanian, Georgia Tech, Neuroscience, 2023-present
46. Jeswin Meslie, Georgia Tech, Neuroscience, 2022.
45. Ricardo Ramos, Biomedical Engineering, Georgia Tech/Emory, 2022
44. Rachel Watermeier, Georgia Tech, Neuroscience, 2022
43. Erica G. Pareizs, Georgia Tech, Neuroscience, 2021-present
42. Raeeva Ahmed Georgia Tech, Biological Sciences, 2020-present  
Presidential Undergraduate Research Award, 2021
41. Sindhu Kannappan Georgia Tech, Biomedical Engineering, 2019-2020
40. Celina Zhang Georgia Tech, Neuroscience, 2019-present
39. Gina Grenga Georgia Tech Biological Sciences, 2019-2020
38. Edward Xia Georgia Tech Mechanical Engineering, 2018; received NASA fellowship
37. Sindhu Kannappan Georgia Tech Biomedical Engineering major, 2019
36. Celina Zhang Georgia Tech Biological Sciences major, 2019
35. Gina Grenga Georgia Tech Biological Sciences major, 2019
34. Timothy Liu Georgia Tech Biological Sciences major, 2018-2019
33. Bryce Matlock Georgia Tech Biological Sciences major, 2018
32. Priyanka Dave Georgia Tech Mechanical Neuroscience major, 2018
31. Yousef Assad Georgia Tech Mechanical Engineering major, 2017
30. Mohamed Islam Georgia Tech Biomedical Engineering major, 2016-2017
29. Daniel Zuniga Georgia Tech Biomedical Engineering major, 2017-2018
28. Rucha Gadre Georgia Tech Biomedical Engineering major, 2016-present
27. Bharathimuru Saravanabhavan Georgia Tech Biomedical Engineering major, 2016-present  
(received a prototype award for the 2017 InVenture Prize)
26. Sindhu Pusulri Georgia Tech Biomedical Engineering major, 2016-present  
(received a prototype award for the 2017 InVenture Prize)
25. Anthony De Filippo Georgia Tech Biomedical Engineering major, 2016-present  
(received a prototype award for the 2017 InVenture Prize)
24. Muhammad Islam Georgia Tech Biomedical Engineering major, 2016-present
23. Levon Sahakian University of Twente Biomedical Engineering major (The Netherlands), 2015  
Summer International Student
22. Chunghee Kim Georgia Tech Biomedical Engineering major, 2015
21. Joanna Gochuico Georgia Tech Biomedical Engineering major, 2015-present  
Research Option
20. Nihir Patel Georgia Tech Biomedical Engineering major, 2014-2015
19. Margaret Hyde Georgia Tech Mechanical Engineering major, 2015
18. Vikram Kumar Georgia Tech Biomedical Engineering major, 2015-2016
17. Kayelynn Bernier Georgia Tech Biomedical Engineering major, 2014
16. Shushmita Hoque Georgia Tech Biomedical Engineering major, 2014
15. Ty'Quish Keyes Morehouse University Physics major, 2013-2014  
Presented a poster at 8th Annual Innovation Expo at Morehouse College, April 2014  
Buick Scholarship, 2014
14. Fariha Alam Georgia Tech Biomedical Engineering major, 2013  
Presented a poster at Georgia Tech Undergraduate Research Symposium, spring 2013
13. Wendy Wang Georgia Tech Biomedical Engineering major, 2012-2013  
Research Option  
Presented a poster at Georgia Tech Undergraduate Research Symposium, spring 2013  
Currently a medical student at Boston University School of Medicine
12. Camille Johnson Georgia Tech Biomedical Engineering major, 2013-2014

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- Presented a poster at Georgia Tech Undergraduate Research Symposium, spring 2014  
Starting PhD at Georgia Tech, fall 2015
11. Priya Patel Georgia Tech Mechanical Engineering major, 2012  
10. Patrick Peters Georgia Tech Biomedical Engineering major, 2012  
9. Allison Cerutti University of Missouri Biomedical Engineering major, 2012  
Presidential Undergraduate Research Award, 2012  
Presented her work at Georgia Tech PURA Symposium  
Currently Orthotics Resident with Orthotic & Prosthetic Lab, Inc., Saint Louis, MO
8. Briana Shay Georgia Tech Biomedical Engineering major, 2011  
7. Juan Cave II Georgia Tech Biomedical Engineering major, 2010-2011  
Presented a poster at Rocky Mountain American Society of Biomechanics Meeting, 2011  
Currently a MS student in Orthotics & Prosthetics at California State University, Dominguez Hills
6. Gunan Ganju Georgia Tech Biomedical Engineering major, 2010-2011  
Currently a medical student at Emory University School of Medicine
5. Shivani Shah Georgia Tech Biology major, 2007-2009  
Presented a poster at Georgia Tech Undergraduate Research Symposium, spring 2009  
Co-authored a poster at Annual Meeting of Society for Neuroscience, Chicago IL, 2009
4. Lisa Shah Georgia Tech Management major, 2007  
3. Denise Larkins Georgia Tech Psychology major, 2004-2006  
Presidential Undergraduate Research Award, 2006  
Presented a poster at South East American Society Biomechanics Meeting, Duke University, 2007  
Presented a poster at Undergrad Poster Session in CoS advisory board meeting at GA Tech, 2006  
Received MS degree in Prosthetics and Orthotics from Georgia Tech  
Currently certified Orthotist with Children's Meridian Mark, Children's Healthcare of Atlanta
2. Brad Farrell Georgia Tech Biomedical Engineering major, 2005-2006  
Presented a poster at South East American Society Biomechanics Meeting, Duke University, 2007  
Winner of Georgia Tech Graduate Student Research Symposium travel award, 2011  
NIH training grant fellow, 2009-2012  
Received PhD from Prilutsky lab  
Currently postdoctoral researcher at Shepherd Center, Atlanta, 2013-2015  
Accepted Assistant Professor tenure-track position at Georgia State University, August 2015  
Received NIH R21 grant HD084188 as a PI, 2015-2017
1. David Ashley Georgia Tech Biomedical Engineering major, 2002–2003  
Presented a poster at Annual Meeting of Society for Neuroscience, New Orleans LA, 2003  
NSF graduate research fellow, 2004-2007 at Cornell University  
Received MS in Chemical Engineering from Cornell University  
Currently Project Manager II with Nexant Inc.

**B4. Service on Thesis Committees**

38. Sixu Zhou Ph.D. student (Georgia Tech, Mechanical Engineering, 2024-present)  
37. Hanjun Kim Ph.D. student (Georgia Tech, Mechanical Engineering, 2024-present)  
36. Joelle Dick Ph.D. student (Georgia Tech, Applied Physiology, 2024-present)  
35. Layla Abdullatif Ph.D. student (Georgia Tech, Biological Sciences, 2023-present)  
34. Melody Modarressi Ph.D. student (Georgia Tech, Biological Sciences, 2023-present)  
33. Shravan Tata Ramalingasetty Ph.D. (École Polytechnique Fédérale de Lausanne, Biorobotics, 2022)  
32. Phillip Tran Ph.D. student (Georgia Tech, Biomedical Engineering, 2021-2022)  
31. Shea McMurtry Ph.D. student (Georgia Tech, Biological Sciences, 2020-2022)  
30. Adam De Boef, Ph.D. student (Georgia Tech, Biological Sciences, 2021-2023)  
29. John Johnson Ph.D. student (Georgia Tech Biological Sciences, 2019-2022)

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28. Thendral Govindaraj Ph.D. student (Georgia Tech, Mechanical Engineering/Biological Sciences, 2021-present)
27. Kristel Y. Topping Ph.D. student (Georgia Tech Biological Sciences, 2019-2021)
26. Bennett L Alterman Ph.D. student (Georgia Tech Biological Sciences, 2019-2022)
25. Jonathan L. Camargo Ph.D. student (Georgia Tech Mechanical Engineering, 2019-2021)
24. Samuel T. Kwak Ph.D. student (Georgia Tech Biological Sciences, 2018-present)
23. Jessica Rae Green Ph.D. student (GSU, Neuroscience, 2015-2021)
22. Michel Bernabei Ph.D. student (VU University of Amsterdam Movement Science, 2017)
21. Brian Selgrade Ph.D. student (Georgia Tech Applied Physiology, 2010-2016)
20. Elizabeth Latash Ph.D. student (Georgia State University, Neuroscience Institute, 2015-2020)
19. Regan Lawson Ph.D. student (Georgia Tech Applied Physiology, 2013-2018)
18. Chris Tuthill Ph.D. student (Georgia Tech/Emory Biomedical Engineering, 2014-2018)
17. Gareth Givanasen Ph.D. student (Georgia Tech/Emory Biomedical Engineering, 2013-2015)
16. Rachel Kelly Ph.D. student (Georgia Tech Applied Physiology, 2013-2015)
15. Dwight Jahbuay Ph.D. student (Drexel College of Medicine, Neurobiology, 2012-2015)
14. Irrum Fawad Niazi Ph.D. student (Georgia Tech Applied Physiology, 2012-2015)
13. Jason White Ph.D. student (Georgia Tech/Emory Biomedical Engineering, 2012-2016)
12. Ellenor Brown Ph.D. student (Georgia Tech Applied Physiology, 2011-2018)
11. Nikhilesh Nataj Ph.D. student (Georgia Tech Applied Physiology, 2011-2015)
10. Jasper Tong-Biau Yen Ph.D. student (Georgia Tech/Emory Biomedical Engineering, 2010-2011)
9. William Cusack Ph.D. student (Georgia Tech Applied Physiology, 2010-2014)
8. Tracy Norman Ph.D. student (Georgia Institute of Technology, 2010-2015)
7. Megan Toney Ph.D. student (Georgia Institute of Technology, 2010-2014)
6. Lee Childers Ph.D. student (Georgia Tech Applied Physiology, 2008-2012)
5. Karolyn Babalola Ph.D. student (Georgia Tech Electrical & Computer Engineering, 2008-2012)
4. Vasiliy Bukharin Ph.D. student (Georgia Tech Applied Physiology, 2009-2013)
3. Heather Hayes Ph.D. student (Georgia Tech/Emory Biomedical Engineering, 2008-2010)
2. Jay Baumann Ph.D. student (Georgia Tech Applied Physiology, 2006-2013)
1. Arick Auyang Ph.D. student (Georgia Tech Applied Physiology, 2005-2010)

## **B5. Mentorship of Postdoctoral Fellows and Visiting Scholars**

6. Dr. Mohammadali S. Rahmati, 2021-2023  
Currently a postdoc at Georgia Tech
5. Dr. Annette Pantall, 2010-2013  
Currently a Research Faculty at Newcastle University, UK
4. Dr. Margarita Bulgakova, 2009-2012  
Currently a private complementary medicine and wellness specialist
3. Dr. Emma Hodson-Tole, 2007  
Awarded Sir Henry Wellcome Postdoctoral Research Fellowship from The Wellcome Trust, 2007  
Currently Professor at Manchester Metropolitan University, UK
2. Dr. Alexander N. Klishko, 2006-2015  
Co-Organizer of workshop at International Computational Neuroscience Meeting, Atlanta, 2012  
Currently a Senior Research Scientist in Georgia Tech School of Biological Sciences
1. Dr. Huub Maas, 2004-2005  
Currently an Associate Professor at VU University Amsterdam, The Netherlands

## **C. Educational Innovations and Other Contributions**

No data

## **VI. Service**

May 2025

## **A. Professional Contributions**

### ***Conference Organizing:***

Co-Organizer of American Society of Biomechanics Annual Conference (virtual), Atlanta GA, August 10-13, 2021

Co-Organizer of American Society of Biomechanics Annual Conference, Atlanta GA, August 4-7, 2020

Member of International Program Committee for IASTED International Conference on Biomedical Engineering (BioMed 2016), Innsbruck, Austria, February 2016

Co-Organizer of workshop ‘Neuromechanical modeling of posture and locomotion’, International Computational Neuroscience Symposium, Atlanta/Decatur, USA, July 2012

Co-chair of session ‘Jumping’, XXIVth Congress of International Society of Biomechanics, Nala, Brazil, August 2013

Organizer and Chair of Symposium ‘Motor Control – The Distribution Problem’, 6<sup>th</sup> World Congress of Biomechanics, Singapore, August, 2010.

Chair of session ‘Motor Control’, XXXth American Society of Biomechanics Meeting, Stanford University, August 2007

Member of International Program Committee for IASTED International Conference on Biomechanics (BioMech 2007), Honolulu, USA, August 2007

Member of International Program Committee for IASTED International Conference on Biomechanics (BioMech 2006), Palma De Mallorca, Spain, August 2006

Member of International Program Committee for IASTED International Conference on Biomechanics (BioMech 2005), Benidorm, Spain, September 2005

Member of jury for Young Investigator Poster Presentations Award, XXth Congress of International Society of Biomechanics, Cleveland, USA, August 2005

Chair of Session ‘Animal Mechanics’, XXth Congress of International Society of Biomechanics, Cleveland, USA, August 2005

Co-Organizer and Co-Chair of mini-Symposium ‘New Developments in Neural Control of Locomotion’, Georgia Tech, Atlanta, June 2005

Member of International Program Committee for IASTED International Conference on Biomechanics (BioMech 2004), Honolulu, USA, August 2004

Co-Chair of session ‘Locomotion’, XVIIth Congress of International Society of Biomechanics, Calgary, Canada, July 1999

### ***Advisory Committees:***

No data

### ***Professional Societies:***

No data

### ***Membership in Professional and Honor Societies:***

American Physiological Society

Society for Neural Control of Movement

Society for Neuroscience

Society for Computational Neuroscience

### ***Editorial Board Memberships:***

Nature Scientific Reports (UK), 2013-2016

Journal of Neurophysiology (USA), 2017-present

### ***Peer Reviewing:***

May 2025

Manuscripts reviewed (~20 per year total) for:

Journal of Biomechanics, Journal of Applied Biomechanics, Journal of Biomechanical Engineering, Mathematical Biosciences, Robotica, Computer Methods in Applied Mechanics and Engineering, Motor Control, Gait and Posture, IEEE Transaction of Mechatronics, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Neural Systems & Rehabilitation Engineering, Journal of NeuroEngineering and Rehabilitation, Journal of Rehabilitation Research and Development, Journal of Hand Therapy, Prosthetics and Orthotics International, Journal of Neurotrauma, Biological Cybernetics, Biomimetics, Annals of Biomedical Engineering, Journal of Biomedical Materials Research Part A, Experimental Brain Research, PLOS Computational Biology, Frontiers in Physiology, Frontiers in Computational Neuroscience, PLOS One, Journal of Applied Physiology, Journal of Neurophysiology, Neuroscience, Behavioural Brain Research, Journal of Computational Neuroscience, Journal of Motor Behavior, Journal of Experimental Biology, Journal of the Royal Society Interface, Biology Letters, Current Biology, Cells Tissues Organs, Exercise and Sport Sciences Reviews, British Journal of Sport Medicine, Journal of Sport Sciences, Medicine & Science in Sports & Exercise, Scientific Reports, Nature Communications.

Proposals reviewed for:

NIH review panel ‘Small Business: Rehabilitation and Bioengineering’, 2025.  
NSERC discovery grant program, Canada, 2025.  
PhD Thesis examiner for the Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, 2021  
Canada Foundation for Innovation, 2020  
NIH Research Innovation for Scientific Knowledge for Musculoskeletal Diseases, 2020  
Swiss National Science Foundation, 2019  
The Netherlands Organization for Scientific Research, 2017, 2018  
NIH Musculoskeletal Rehabilitation Small Business program, 2016  
DOD Orthotics and Prosthetics Outcomes Research Program, review panel member, 2016, 2019  
Foundation for Polish Science, 2013, 2016, 2017  
PhD Thesis examiner for the School of Human Movements and Nutritional Sciences at the University of Queensland, Australia  
NIH Bioengineering Research Partnerships program, review panel member, 2015  
NSERC Discovery Grant Program – Biological Systems and Functions, Canada, review panel member, 2013-2016, 2017, 2018, 2019, 2020.  
Air Force Office of Scientific Research, 2012  
NSF/NIH Program in Collaborative Research in Computational Neuroscience, review panel member, 2011-2013  
South Carolina Space Grant Consortium, 2010  
Oklahoma Health Research Program, review panel member, 2010  
NIH Modeling and Analysis of Biological Systems Study Section, ad hoc member, 2010.  
European Science Foundation, European Young Investigator competition, 2007  
Austrian Science Foundation, 2006  
NSF, 2003, 2007  
VU University of Amsterdam, external PhD thesis examiner, 2000, 2017

**B. Public and Community Service**

***Government Workshops:***

No data

**C. Institute Contributions**

Member of Chair Reappointment Committee, Biological Sciences, 2021  
Member of GT Student Regulations Committee, 2020-Present



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Member of Tenure and Promotion Committee, Biological Sciences, 2016-present

Member of Academic Faculty Senate, 2016-2017

Member of Organizing Committee for Research Seminar Series, School of Biological Sciences, 2016-present

Participant of Workshop on Interface Science and Engineering Grand Challenges, College of Sciences, May, 2015

Member of Georgia Tech Prosthetics, Orthotics, Robotics steering committee, 2015-2016

Jury Member for Georgia Tech Annual Graduate/Undergraduate Research Symposia, 2010-present

Team member, NSF Integrative Graduate Education & Research Traineeship grant development, 2009

Organizer of Applied Physiology Brownbag Research Seminar series, 2007-present

Member of Applied Physiology School Chair Search Committee, 2006

Organizer of Applied Physiology Neural Control and Biomechanics Seminar series, 2005-2007.

Provide training and expert advice to Georgia Tech graduate and undergraduate students using facilities of Prilutsky's lab, 2005-present