
EDUCATION

- 2019 **PhD** | Biomedical Engineering | Northwestern University
Advised by Prof. Lee E. Miller
Dissertation: *The contribution of whole-limb kinematics to proprioceptive representations in the central nervous system*
- 2018 **MS** | Biomedical Engineering | Northwestern University
- 2011 **BS** | Electrical Engineering | University of Illinois at Urbana-Champaign

RESEARCH EXPERIENCE

- 2019- **Postdoctoral Associate** | University of Pittsburgh
Aaron Batista Lab
- *Planning to study the neural basis of skill learning and expertise in monkeys*
- 2012-2019 **PhD student** | Northwestern University
Lee Miller Limb Lab
- *Performed surgical procedures and experiments to study the representation of proprioception (the sense of body state) in brains of monkeys*
- 2011-2012 **Research intern** | University of Illinois at Urbana-Champaign
Prashant Mehta Research Group
- *Worked on implementation of novel Feedback Partical Filter, a neural network-like filter for use in estimating quantities given noisy measurements*
- 2010-2011 **Undergraduate researcher** | University of Illinois at Urbana-Champaign
Todd Coleman Research Group
- *Developed techniques to improve quality of electroencephalography (EEG) recording*
- *Collaborated with John Rogers Research group to develop applications for novel epidermal electronic tattoos*

AWARDS, FELLOWSHIPS & GRANTS

- 2019-2021 Neurobiology of Neurological Disease T32 Institutional Training grant, University of Pittsburgh
- 2018 Neural Control of Movement 2018 Meeting Scholarship
- 2017-2018 Cabell Terminal Year Fellowship, Northwestern University
- 2012-2017 NSF Graduate Research Fellowship, National Science Foundation
- 2012-2013 Cabell Fellowship, Northwestern University

COMMUNITY & VOLUNTEER SERVICE

- 2013-2018 Get-a-Grip program, Northwestern University/Nettlehorst Elementary School
- 2014-2015 Chicago Brain Awareness Fair (exhibitor), Northwestern University

LEADERSHIP POSITIONS

- 2017 **Co-president** | Get-a-Grip
- *Planned outreach program with local elementary school*
- 2014 **Recruitment Chair** | BME Graduate student organization
- *Planned departmental recruitment weekend for prospective graduate students*

HONORS & DISTINCTIONS

- 2011 **Bronze Tablet** | University of Illinois at Urbana-Champaign
- *Awarded to top 3% of graduating class*
- 2008-2011 **Chancellor's Scholar** | University of Illinois at Urbana-Champaign
- *Honors program admitting ~125 incoming freshmen based on academic performance*

PROFESSIONAL SOCIETY MEMBERSHIPS

2013-2020 Society for Neuroscience
2017 Society for the Neural Control of Movement

TEACHING

2015 **Teaching Assistant** | BME 307: Experimental Design | Northwestern University
- Led the lab portion of the course with ~8 contact hours per week

MENTORSHIP

2017-2018 Supervised an intern on a six month research project investigating the representation of free reaching in somatosensory cortex

SELECTED PUBLICATIONS

7 of 13 since 2009

- Chowdhury, R. H.**, Glaser, J. I., & Miller, L. E. (2020). Area 2 of primary somatosensory cortex encodes kinematics of the whole arm. *eLife*, 9; DOI: [10.7554/elife.48198](https://doi.org/10.7554/elife.48198)
- Gallego, J.A., Perich, M.G., **Chowdhury, R.H.**, Solla, S.A., Miller, L.E. (2020). Long-term stability of cortical population dynamics underlying consistent behavior. *Nature Neuroscience*, 23, 260-270; DOI: [10.1038/s41593-019-0555-4](https://doi.org/10.1038/s41593-019-0555-4)
- Lucas, A., Tomlinson, T., Rohani, N., **Chowdhury, R.**, Solla, S. A., Katsaggelos, A. K., & Miller, L. E. (2019). Neural Networks for Modeling Neural Spiking in S1 Cortex. *Frontiers in systems neuroscience*, 13; DOI: [10.3389/fnsys.2019.00013](https://doi.org/10.3389/fnsys.2019.00013)
- Benjamin, A. S., Fernandes, H. L., Tomlinson, T. T., Ramkumar, P., Versteeg, C. S., **Chowdhury, R.H.**, Miller, L. E. & Kording K. P. (2018). Modern machine learning outperforms GLMs at predicting spikes. *Frontiers in Computational Neuroscience*; DOI: [10.3389/fncom.2018.00056](https://doi.org/10.3389/fncom.2018.00056)
- Glaser, J. I., **Chowdhury, R. H.**, Perich, M.G., Miller, L. E. & Kording, K. P. (2017). Machine learning for neural decoding. arXiv preprint arXiv:[1708.00909](https://arxiv.org/abs/1708.00909)
- Suresh, A.K., Winberry, J., Versteeg, C., **Chowdhury R. H.**, Tomlinson, T., Rosenow, J. M., Miller, L. E., Bensmaia, S. J. (2017). Methodological considerations for a chronic neural interface with the cuneate nucleus of macaques. *Journal of Neurophysiology* Sep 2017, jn.00436.2017; DOI: [10.1152/jn.00436.2017](https://doi.org/10.1152/jn.00436.2017)
- Chowdhury, R. H.**, Tresch, M. C., & Miller, L. E. (2017). Musculoskeletal geometry accounts for apparent endpoint representation in dorsal spinocerebellar tract. *Journal of Neurophysiology* Apr 2017, jn.00695.2016; DOI:[10.1152/jn.00695.2016](https://doi.org/10.1152/jn.00695.2016)

SELECTED CONFERENCE PRESENTATIONS

3 of 7 since 2012

- Chowdhury, RH**, J Sombeck, C Versteeg, T Tomlinson, and LE Miller. The importance of musculoskeletal mechanics to the neural activity of proprioceptive somatosensory cortex. Poster presented at Mechanisms of Dexterous Behavior meeting, Janelia, May 2018.
- Chowdhury, RH**, J Sombeck, C Versteeg, T Tomlinson, and LE Miller. Reinterpreting CNS proprioceptive activity in terms of musculoskeletal mechanics. Talk as part of a panel called "Reinterpreting proprioception in terms of musculoskeletal mechanics", presented at Neural Control of Movement meeting, Santa Fe, May 2018.
- Chowdhury, RH**, BM London, J Sombeck, C Versteeg, T Tomlinson, and LE Miller. Integration of force and movement representation in proprioceptive area 2 of primary somatosensory cortex. Poster presented at Society for Neuroscience meeting, Washington, D.C., November 2017.

SCIENCE COMMUNICATION

- Chowdhury, RH**. "Our hidden sixth sense." Presented at *Seven Minutes of Science*, March 2017. <https://www.youtube.com/watch?v=mBa2j6-h9IU>
- Chowdhury, RH**. "Nature's Mysteries: the sixth sense that coordinates our movements." *Helix Magazine* Jan 2017. <https://helix.northwestern.edu/article/nature%E2%80%99s-mysteries-sixth-sense-coordinates-our-movements>