

Derek Merryweather
merryweatherderek@gmail.com

EDUCATION

University of British Columbia PhD, Neuroscience	Vancouver, BC 2021-present
New York University MSc, Biology	New York City, NY 2021
University of Oregon BS, Human Physiology	Eugene, OR 2017

RESEARCH EXPERIENCE

Dr. Mark Cembrowski laboratory, University of British Columbia Vancouver, BC
PhD student
Advisor: Dr. Mark Cembrowski

- Characterizing identified unique cell types by their electrophysiological properties
- Recording cellular activity in acute *ex vivo* slices and *in vivo* with Neuropixels probes

Dr. Adam Carter laboratory, New York University New York City, NY
Master's student December 2019 – June 2021
Advisor: Dr. Adam Carter

- Developed a head-fixed cocaine sensitization paradigm in combination with fiber photometry
- Collaborated with fellow laboratory members to create analysis pipelines for photometry and Pavlovian conditioning data
- Recorded the neural activity of mice exposed to cocaine using Neuropixels probes
- *Acquired Skills:* stereotaxic injection, headplate and fiber photometry implant surgeries, preparation of brain slices for electrophysiology experiments, whole-cell patch-clamp method, cocaine sensitization and Pavlovian conditioning behavioral experiments, Neuropixels probe recording procedure and analysis pipeline, Matlab

Howard Hughes Medical Institute, Janelia Research Campus Ashburn, VA
Research Technician II, GENIE Project June 2018 – July 2019
Advisor: Allan Wong, Douglas Kim

- Developed neuronal indicators via high throughput cell and neuron-based screening processes
- Collaborated with Schreiter and Svoboda laboratories at Janelia to quantify membrane trafficking of genetically encoded voltage indicators
- *Acquired Skills:* mouse perfusion and fixation surgeries, mouse brain sectioning, immunohistochemistry, image acquisition with confocal microscopy, image analysis and quantification of membrane localization, Python

Laboratory Intern, GENIE Project

August 2017– June 2018

Advisor: Douglas Kim

- Shadowed the Anatomy & Histology team and members of the Svoboda laboratory
- *Acquired Skills:* structuring and organizing experiments, solution preparation, presentation of data in biweekly meetings

PUBLICATIONS

Abdelfattah AS, Valenti R, Zheng J, Wong A; **GENIE Project Team**, Podgorski K, Koyama M, Kim DS, Schreiter ER. A general approach to engineer positive-going eFRET voltage indicators. Nat Commun. 2020 Jul 10;11(1):3444. doi: 10.1038/s41467-020-17322-1. PMID: 32651384; PMCID: PMC7351947.

AWARDS & RECOGNITIONS

Pederson Award: faculty nominated best graduate student presentation – \$500 (CAD)
Cellular and Physiological Sciences retreat, 2023

Student's Top Choice Award: student nominated best graduate student presentation
Cellular and Physiological Sciences retreat, 2023

President's Academic Excellence Initiative PhD Award - \$1,030 (CAD)
University of British Columbia, 2021

International Tuition Award – \$2,133 (CAD)
University of British Columbia, 2021

Faculty of Medicine Graduate Award - \$4,500 (CAD)
University of British Columbia, 2021

ORAL PRESENTATIONS

Merryweather DN. Acetylcholine acts as cell-type-specific switch for hippocampal activity. University of British Columbia Cellular and Physiological Sciences retreat. Vancouver, Canada. (2023).

Merryweather DN. Unique intrinsic properties of non-canonical subicular cell type drive distinct computation. University of British Columbia Cellular and Physiological Sciences Retreat Speed Poster, Vancouver, Canada. (2022).

POSTER PRESENTATIONS

Merryweather DN, Kraus L, Cembrowski MS. Unique cellular and synaptic computations in an excitatory subiculum subtype. Canadian Association for Neuroscience, Toronto, Canada. May 2022.

I Kolb, BJ Arthur, SD Brenowitz, G Cao, H Dana, JP Hasseman, V Jayaraman, LL Looger, DS Kim, Y Liang, LD Lavis, **DN Merryweather**, ER Schreiter, Y Sun, K Svoboda, AK Tsang, G Tsegaye, AM Wong. High-performance fluorescent voltage and

calcium indicators. Poster presentation delivered at the annual meeting for the Society for Neuroscience, San Diego. November 2018.

THESIS / DISSERTATION

Merryweather DN, Carter AG. Cocaine evoked activity changes within the Nucleus Accumbens. New York University. Master's Thesis. Supervisor: Dr. Adam Carter. (2021).

OTHER EXPERIENCE

ADAMS Life Skills English & Conversation Course Sterling, VA
Volunteer Instructor Sept 2018 – 2019

- Taught non-English speakers of the Muslim community to learn practical, conversational English

University of Oregon, Dept. of Human Physiology Eugene, OR
Human Physiology I Undergraduate Learning Assistant June – July 2017

- Aided human physiology course curriculum by tutoring students' material, including neuro and muscular physiology

University of Oregon, Football Team Eugene, OR
Athletic Training Intern March – May 2017

- Helped prepare division one athletes
- Gained medical experience as a first responder to on field practice injuries

University of Oregon, Club Baseball Team Eugene, OR
Team member 2012 – 2016

- Trained 6 hours/week and traveled over 30 weekends to compete nationally
- World Series National Championship Winner for the 2014 – 2015 season

REFERENCES

Mark Cembrowski, PhD
Assistant Professor, University of British Columbia
Email: mark.cembrowski@ubc.ca

Adam Carter, PhD
Professor of Neural Science, New York University
Email: agc5@nyu.edu

Karel Svoboda, PhD
Vice President and Executive Director, Allen Institute for Neural Dynamics
Email: svobodak@janelia.hhmi.org

Allan Wong, PhD
Scientific Operations Manager, Janelia Research Campus (2018-2019)
Equity Analyst ArrowMark Partners (2019-Present)

Email: allanwong@gmail.com