

Collaborative Program in Neuroscience (CPIN)

University of Toronto

Newsletter – Vol. 36, No. 9 – May 2020



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News – CPIN Trainees Congratulations to CPIN student member **Carina Freitas** on recently completing the CPIN requirements and graduating from her PhD program. Please see page 2 for details.

News – CPIN Faculty Members We would like to welcome **Dr. Sean Hill** and **Dr. Shreejoy Tripathy** as new faculty members to the CPIN community. Please see page 3 for details.

Congratulations CPIN Graduating Students Please see page 2 for details.

Welcome New CPIN Students Please see page 2 for details.

COVID-19 Update

<http://www.neuroscience.utoronto.ca/>

As the Province begins a staged approach to reopening, the University is looking ahead to September 2020. Plans for the upcoming term are considering a mix of smaller, on-campus courses, seminars, labs, and experiential learning, with larger online and remote courses and lectures.

CPIN will continue to follow the University's lead on policies to ensure the health and safety of our community. We will continue to update you of any new developments through the newsletter, email communications and the CPIN website:

<http://www.neuroscience.utoronto.ca/>

We encourage CPIN members to contact us at p.neuroscience@utoronto.ca with any questions about the CPIN program or requirements.

For COVID-19 regular updates impacting graduate students in the University of Toronto:

<https://www.utoronto.ca/message-from-the-university-regarding-the-coronavirus>

School of Graduate Studies: <https://www.sgs.utoronto.ca/covid19/>

City of Toronto's COVID-19 information page: <https://www.toronto.ca/home/covid-19/>

<http://www.neuroscience.utoronto.ca/communications/newsletter.htm>

CPIN Newsletter

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Faculty of Medicine

CPIN Participating Units

Applied Psychology &
Human Development
Biochemistry
Biomaterials & Biomedical
Engineering
Cell & Systems Biology
Computer Science
Dentistry
Laboratory Medicine &
Pathobiology
Medical Biophysics
Medical Science
Music
Pharmaceutical Sciences
Pharmacology & Toxicology
Physiology
Psychology
Public Health
Rehabilitation Science

Contributors:

Heart & Stroke/Richard
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Cardiovascular Research

Human Biology Program
Krembil Research Institute
St. Michael's Neuroscience
Research Program

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News – CPIN Trainees

http://www.neuroscience.utoronto.ca/communications/news_cpिन_students.htm



Congratulations to CPIN student member **Carina Freitas** (Institute of Medical Science, Dr. Evdokia Anagnostou) on recently completing the CPIN requirements and graduating from her PhD program.

Carina is a child psychiatrist and musician by background and pursued a PhD project that combined her two passions. Carina's doctoral work involved investigating the neural bases of music familiarity in children with autism spectrum disorder using magnetoencephalography. This research has the potential to inform broader neuroscience work on the mechanisms related to neural atypicality processing in autism.

During her graduate studies, Carina received several merit-based awards, local and international, including a scholarship from the Portuguese Science Foundation (FCT) for her academic achievements (over \$120,000). She is the first author on one publication (Frontiers in Neuroscience) with a second submitted (Molecular Autism) and a co-author on one additional paper (Cerebral Cortex).

Carina served on different CPIN initiatives, such as the Brain Bee high school competition and the CPIN Mentorship Program. She also held a leadership role as Sponsorship executive in the IMS magazine. Outside the University, Carina collaborated monthly as a mental health guest in a TV talk show for the Portuguese communities in Ontario and Québec, with an estimated audience of 500,000 viewers (2015- 2018).

After her PhD, Carina is returning to her previous position as a child psychiatrist in Portugal and pursuing a career as a clinician-scientist.

Congratulations CPIN Graduating Students

<http://www.neuroscience.utoronto.ca/students/currentstudents.htm>

Congratulations to our graduating Trainees:

Last Name	First Name	Home Unit	Degree	Supervisor
Albanowski	Kimberly	MUS	MA	Dr. Michael Thaut
Noorani	Alborz	IMS	MSc	Dr. Mojgan Hodaie

Reminder: CPIN Student Completion Form CPIN graduate students who have completed both their home department and CPIN trainee requirements must fill in the online completion form located at the link below:

http://www.neuroscience.utoronto.ca/students/cpिन_student_completion_form.htm

Welcome New CPIN Students

<http://www.neuroscience.utoronto.ca/students/currentstudents.htm>

CPIN extends a warm welcome to the following new CPIN Trainee:

Last Name	First Name	Home Unit	Degree	Supervisor
Abdollahi	Nooshin	IBBME	PhD	Dr. Steve Prescott

<http://www.neuroscience.utoronto.ca/communications/newsletter.htm>

News – CPIN Faculty Members

http://www.neuroscience.utoronto.ca/communications/news_cpिन_faculty_members.htm



We would like to welcome **Dr. Sean Hill** (Professor, Department of Psychiatry, University of Toronto; Director, Krembil Centre for Neuroinformatics, Centre for Addiction and Mental Health; Faculty Affiliate, Vector Institute Titular Professor, EPFL, Switzerland) as a new faculty member to the CPIN community.

Dr. Sean Hill is the Director of the Krembil Centre for Neuroinformatics at CAMH. Prior to this, he was co-Director of Blue Brain, a Swiss brain initiative, where he led the Neuroinformatics division, based at the Campus Biotech in Geneva, Switzerland. After completing his PhD in computational neuroscience at the Université de Lausanne in Switzerland, Dr. Hill held postdoctoral positions at The Neurosciences Institute in La Jolla, California, and the University of Wisconsin, Madison. He

subsequently joined the IBM T.J. Watson Research Center, where he served as the Project Manager for Computational Neuroscience at Blue Brain until his appointment as Director of the Laboratory for the Neural Basis of Brain States at the École Polytechnique Fédérale de Lausanne (EPFL). Dr. Hill also served as the Executive Director (2011-2013) and Scientific Director (2014-2016) of the International Neuroinformatics Coordinating Facility (INCF) at the Karolinska Institutet in Stockholm, Sweden.

Dr. Hill has extensive experience in building and simulating large-scale models of brain circuitry and has also supervised and led research efforts exploring the principles underlying the structure and dynamics of neocortical and thalamocortical microcircuitry. He currently serves in management and advisory roles on several large-scale clinical informatics initiatives around the world. Currently, his research is focused on developing new biophysically detailed models of rodent thalamocortical circuitry using high quality datasets from single cell transcriptomics, whole brain single cell reconstructions, and many other new sources of high quality data emerging from the large-scale brain projects in the US, EU and China. Future work will develop approaches to embed models of thalamocortical microcircuit dynamics within computational models of the whole rodent and human brains. By coupling models of the local dynamics with data-driven whole brain anatomy and synaptic connection pathways, we will explore the cellular and synaptic basis of whole brain dynamics and the capacity to integrate information across scales. Ultimately, these models can be personalized to specific configurations that integrate genetic constraints on ion channels and receptors, cellular populations and synaptic connectivity based of the patterns from individual brains. In the future, such models can form the basis of personalized diagnostics, interventions and treatments.



We would like to welcome **Dr. Shrejoy Tripathy** (Assistant Professor and Independent Scientist, Laboratory for Computational Genomics, Krembil Centre for Neuroinformatics, Centre for Addiction and Mental Health; Department of Psychiatry, University of Toronto) as a new faculty member to the CPIN community.

Dr. Tripathy is an Independent Scientist at the Centre for Addiction and Mental Health and an Assistant Professor in the Department of Psychiatry at the University of Toronto. He did his Post-Doc at the University of British Columbia with Paul Pavlidis, where he worked on integrating neuron electrophysiology with cell type-specific gene expression. He received his PhD in Neural Computation from Carnegie Mellon University with Nathan Urban in 2013, on computational and neuroinformatics methods for studying the electrophysiological diversity of neurons throughout the brain. He received

his BSc in Biomedical Engineering from Johns Hopkins University in 2008.

The goal of the Tripathy Lab (<https://triplab.org>) is to develop a multi-scale understanding of brain cell type diversity, bridging genetics and gene expression with cell and circuit physiology. The lab develops machine learning and statistical methods to help neuroscientists translate information at different levels of organization, like gene expression to neuron electrophysiology. The long-term goal of this work is to better understand the cellular changes that underlie psychiatric and neurological disorders and to ultimately develop approaches that can help guide tailored treatments for mental health patients.

The lab is part of the new Krembil Centre for Neuroinformatics and contributes to the building of large-scale computational simulations of the nervous system. The lab is a computational “dry-lab”, but collaborates extensively with experimental groups in Toronto and beyond.

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