

# Collaborative Program in Neuroscience (CPIN)

## University of Toronto

Newsletter – Vol. 36, No. 3 – November 2019

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**Welcome New CPIN Faculty Members** We would like to welcome **Dr. Etay Hay** and **Dr. Monika Molnar** as new faculty members to the CPIN community. Please see page 2 for details.

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### 2019-20 CPIN Distinguished Lectureship Series

<http://www.neuroscience.utoronto.ca/events/lectureship.htm>



#### CPIN Emerging Leaders in Neuroscience Lecture

Speaker | **Adam Packer**, PhD, Sir Henry Dale and Beit Fellow, Department of Physiology, Anatomy & Genetics, University of Oxford

Title | *Technologies for all-optical interrogation of neural circuits in behaving animals*

Date | **Wednesday, December 4, 2019**

Time | 12:00 PM

Location | **\*Please note the room change\*** MSB 2170, Medical Sciences

Building, 1 King's College Circle

Host | **Prajay Shah**, MD/ PhD Student, Institute of Biomaterials and Biomedical Engineering, U of T



#### CPIN Distinguished Lecture

Speaker | **Mathew E. Diamond**, Full Professor, Tactile Perception & Learning Laboratory, International School for Advanced Studies (SISSA), Trieste, Italy

Title | *Neuronal bases of the touch and the time of a tactile stimulus*

Date | **Monday, December 16, 2019**

Time | 10:00 AM

Location | TBA

Host | **Amin Kamaledin**, PhD Student, Institute of Biomaterials and Biomedical Engineering, U of T

Co-sponsors | Department of Physiology, U of T; Neurosciences & Mental Health, SickKids

**Reminder:** CPIN Trainees: Please fill in the online **Lecture Report & Evaluation Form** as a record of your attendance to the Distinguished Lectureship Series within one week of attending the talk.

### CPIN Newsletter

Zhong-Ping Feng  
Director  
CPIN  
Graduate Studies

Iulia Park  
Administrator  
CPIN Office

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**Lead Faculty**  
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  
Lewar Centre of Excellence in  
Cardiovascular Research

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

## Welcome New CPIN Faculty Members

[http://www.neuroscience.utoronto.ca/communications/news\\_cpिन\\_faculty\\_members.htm](http://www.neuroscience.utoronto.ca/communications/news_cpिन_faculty_members.htm)



We would like to welcome **Dr. Etay Hay** (Assistant Professor, Department of Psychiatry, Department of Physiology, U of T; Independent Scientist, Krembil Centre for Neuroinformatics) as a new faculty member to the CPIN community.

Dr. Hay is a computational neuroscientist, with expertise in sensory processing by cortical circuits. As an Independent Scientist at the Krembil Centre for Neuroinformatics, CAMH, he leads a team that studies the effect of neuronal mechanisms (connectivity, ion channels and synapses) on somatosensory processing by cortical circuits, in health and disease. He has obtained his PhD from the Hebrew University of Jerusalem, and has conducted a postdoctoral training at the Rotman Research Institute, Baycrest, where he studied whole-brain connectivity by modeling fMRI activity. He has also conducted further postdoctoral training at Western University, studying the tactile input from the human hand, which subcortical populations of neurons provide the cortex.

Dr. Hay's research uses computational models of cortical circuits to study the cellular and circuit mechanisms of cortical processing in health and disease. Brain function is mediated by the interplay between finely-tuned circuit connectivity and versatile cellular mechanisms with which neurons are endowed. Similarly, there is increasing evidence that brain disorders involve malfunction at the intersection of cellular and circuit mechanisms. Dr. Hay's research integrates unique human data to develop a computational platform to advance our understanding of cellular and circuit mechanisms of brain disorders, improve the ability to diagnose using brain recordings, and facilitate the translation of candidate therapeutics by testing in silico their effects on cortical circuits.

Hay lab is currently studying inhibition in cortical circuits in depression: "In particular, we study the inhibitory synaptic connections between dendritic-targeting (somatostatin) interneurons and pyramidal neurons. We develop models of human cortical circuits by capitalizing on unique data from CAMH and Toronto Western Hospital, and study how reduced inhibition affects cortical processing and oscillatory activity between cortical layers. In turn, we simulate electrode probes to characterize the signatures of the cellular effects in clinically-relevant neural signals, e.g. local field potentials and electroencephalography. In addition, we use our computational platform to test in silico the effects of candidate pharmacology for depression developed at CAMH on human and rodent model circuits."



We would like to welcome **Dr. Monika Molnar** (Assistant Professor, Department of Speech-Language Pathology) as a new faculty member to the CPIN community.

Dr. Molnar received her Ph.D. from the Department of Communication Sciences and Disorders at McGill University. Her doctoral dissertation focused on the neural and behavioral correlates of monolingual and bilingual speech processing. At McGill, she also conducted research on how bilingual and monolingual learning contexts affect typical language development in preverbal infants exposed to English and/or French. Previous to joining the Department of Speech-Language Pathology at the University of Toronto, she completed her postdoctoral training at the Basque Center on Cognition, Brain, & Language (BCBL) in Spain (where she also became a Staff Scientist and Research Group Leader). At the BCBL, her research focused on how young children and infants who learn Spanish and/or Basque adapt to a bilingual or a monolingual environment at the neural, cognitive, and behavioral levels.

Dr. Molnar's teaching and current research interests focus on infants and young children with multilingual, bilingual, and monolingual backgrounds, including typically developing populations and populations at (familial) risk of language disorders. In addition, she is interested in to what degree acute otitis media during early childhood interacts with speech perception development. To address her research, Dr. Molnar is using behavioral, eye-tracking, Near-Infrared Spectroscopy (NIRS), and EEG/ ERP techniques.

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## Welcome New CPIN Students

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

We would like to extend a warm welcome to the following new CPIN Trainees:

Last Name	First Name	Home Unit	Degree	Supervisor
Belfiore	Lauren	LMP	MSc	Dr. Carol Schuurmans
David	Luke	LMP	MSc	Dr. Carol Schuurmans
Jafrani	Areeb	LMP	MSc	Dr. Gabor Kovacs
Lee	Seojin	LMP	MSc	Dr. Gabor Kovacs
Loh	Aaron	IMS	PhD	Dr. Andres Lozano
Lutelmowski	Claudia	PCL	PhD	Dr. Ruth Ross
Niederhoffer	Naomi	PSL	PhD	Dr. Sheena Josselyn
Samson	Isaiah	PSL	MSc	Dr. Paul Frankland
Srikanthan	Dilakshan	LMP	MSc	Dr. James Rutka
Vasan	Lakshmy	LMP	PhD	Dr. Carol Schuurmans

## Neuroscience Opportunities

[http://www.neuroscience.utoronto.ca/communications/Positions\\_Available.htm](http://www.neuroscience.utoronto.ca/communications/Positions_Available.htm)

### Postdoctoral Fellow Positions

#### Postdoctoral Position - Molecular Systems Neuroscience (#3213)

Samuel Young Laboratory  
University of Iowa Carver College of Medicine, Iowa City  
[Click here for details](#)

#### Alzheimer's and prion diseases – Postdoctoral Research Fellow

Tanz Centre for Research in Neurodegenerative Diseases  
Krembil Discovery Centre, University of Toronto  
[Click here for details](#)

#### 2 x Post-doctoral research fellow positions in clinical and cognitive neuroimaging – 1 year

#### "Neurophysiological and structural imaging in PTSD and mild traumatic brain injury"

Hospital for Sick Children (SickKids)  
[Click here for details](#)

### Faculty Positions

#### Assistant Professor - Neurodevelopmental Learning Disorders in Education

Department of Applied Psychology and Human Development  
OISE/ University of Toronto  
Deadline Extended to December 2, 2019  
[Click here for details](#)

### Other Neuroscience Opportunities

#### Computational Neuroscience Research Scientist

Krembil Research Institute/ Toronto Western Hospital  
Department: Research

Reports to: Institute Director

Status: Permanent Full-time

<https://www.recruiting.site.com/csbsites/uhncareers/JobDescription.asp?SiteID=10031&JobNumber=851664>

**Description:** The ideal candidate will have a PhD in a relevant field, research expertise and experience in mathematical and computational modeling, and research interests that complement those of the Institute in neurobiology and neurodegeneration. Candidates whose research interests encompass cellular, micro/ macro circuits and/ or large scale brain models, and who have collaborative experimental experience are especially encouraged. The successful candidate will have the ability to establish an independent, well-funded program and will be eligible for appointment at the appropriate level within the University of Toronto.

Qualified applicants are invited to submit their online application (letter of interest, research plan, curriculum vitae), in PDF format as well as complete some initial screening questions. The search committee will begin to review applications in January with a potential start date in Spring/ Summer 2020. Feel free to contact Frances Skinner if you have any questions.

## Upcoming Events

### U of T Neuroscience Seminars

<http://neuroscience.utoronto.ca/events/seminar.htm>

### Conferences and Meetings

[http://neuroscience.utoronto.ca/events/Conf\\_M.htm](http://neuroscience.utoronto.ca/events/Conf_M.htm)

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

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### Congratulations CPIN Graduating Students

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

Congratulations to our CPIN graduating Trainee:



**Name: Philippe D'Onofrio**

Program: PhD

Department: Rehabilitation Science

Supervisor: Dr. Paulo Koeberle

Thesis Title: Necroptosis and its Interactions with Focal Adhesion Kinase (FAK) and Extracellular Receptor Kinase (ERK1/ 2) following Optic Nerve Injury

**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/cpin\\_student\\_completion\\_form.htm](http://www.neuroscience.utoronto.ca/students/cpin_student_completion_form.htm)

### 2019-2020 CPIN Young Researcher Seminar Series

[http://www.neuroscience.utoronto.ca/events/young\\_researcher\\_seminar\\_series.htm](http://www.neuroscience.utoronto.ca/events/young_researcher_seminar_series.htm)

CPIN is pleased to announce its first Young Researcher Seminar of the year on December 12, 2019. This seminar series is a platform launched to showcase the outstanding work and achievements of senior CPIN trainees while allowing them to develop their presentation skills and receive invaluable feedback from CPIN faculty members and fellow peers. The format of the Young Researcher Seminar Series includes a 20 minute presentation followed by a 5 minute question period from the audience.

Speaker | **Ann Gong**, Graduate Student, Laboratory of Dr. Hong-Shuo Sun, Department of Physiology, U of T

Title | *TRPM7 channel signaling pathways in a glioblastoma cell line*

Date | **Thursday, December 12, 2019**

Time | 4:00 PM

Location | MSB 3278, Medical Sciences Building, 1 King's College Circle

Host | Dr. Hong-Shuo Sun, Associate Professor, Departments of Surgery, Physiology, and Pharmacology, IMS, and Leslie Dan Faculty of Pharmacy, U of T

### News – CPIN Trainees

[http://www.neuroscience.utoronto.ca/communications/news\\_cpin\\_students.htm](http://www.neuroscience.utoronto.ca/communications/news_cpin_students.htm)



Congratulations to CPIN student member **Natasha Talwar** (Institute of Medical Science, Dr. Tom Schweizer) on recently completing the CPIN requirements and graduating from her PhD program.

Natasha Talwar's (MSc) research interests intersect neuropsychology and neuroimaging to investigate the brain networks underlying commonly-used cognitive tests. Her Master's project used a novel MRI-compatible tablet combined with functional MRI to study the neural underpinnings of the clock-drawing test in patients with mild cognitive impairment (MCI). Under the supervision of Dr. Tom Schweizer, Natasha led the lab's major study combining a MR-compatible driving simulator and tablet to investigate the neural correlates of driving and cognition in MCI. Natasha authored 3 publications, 2 of which she is the first author. Natasha was selected to present her work at the Alzheimer's Association International Conference and many other local conferences and academic settings. She won first runner-up in the Oral Competition at St. Michael's Research Day. Natasha was granted the SGS Conference Grant and the Li Ka Shing Travel Scholarship.

During her studies, Natasha was involved in the University of Toronto community. She served as a mentor for undergraduate and graduate students through the Biological Sciences Mentorship Program and the IMS Mentorship Program. She was also a lecturer for the Neurosciences 101 High School outreach program organized by CPIN. After her Master's, Natasha intends to pursue a career as a clinician scientist.

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

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### NeuroSci 101

<http://www.neuroscience.utoronto.ca/events/course.htm>

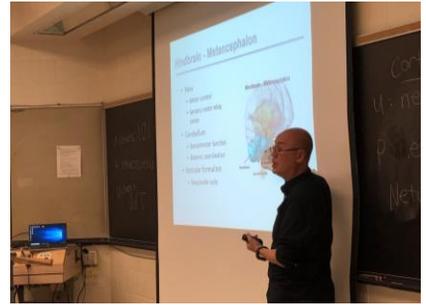


Photo credits Julia Bandura

With the goal of promoting neuroscience interest among secondary school students and helping them prepare for the upcoming 2020 Toronto Brain Bee, CPIN organizes a free neuroscience course (NeuroSci 101) held on the St. George campus at the University of Toronto. Formerly known as Neuroscience Enrichment Program, NeuroSci 101 is an annual series of 12 lectures taught by CPIN graduate trainees, post-doctoral fellows and faculty members.

The Fall session lectures are delivered by **Professor William Ju (Human Biology)**, **Hajer Nakua (MSc candidate, IMS)**, **Sridevi Venkatesan (PhD candidate, Physiology)**, **Julia Bandura (PhD candidate, Physiology)**, **Mudi Zhao (MA candidate, Psychology)** and **Marco Sama (PhD candidate, Psychology)**. Lecture topics include multiple facets of neuroscience research; ranging from neuroanatomy, sensory systems, neurodegenerative conditions to imaging techniques.

This year, NeuroSci101 is coordinated by **Jonathon Chio (PhD candidate, IMS)**, **Dipa Chatterjee (PhD candidate, Pharmacology)** and **Julia Bandura (PhD candidate, Physiology)** with support from CPIN staff **Iulia Park (CPIN Administrator)** and **Dr. Zhong-Peng Feng (CPIN Director)**. Beginning at the start of November 2018, the program is attended by 85 students from various secondary schools in the Greater Toronto Area. The Organizing Committee looks forward to another successful session of NeuroSci 101!

*(Event report by Jonathon Chio)*

### CPIN Undergraduate Mentorship Program

[http://www.neuroscience.utoronto.ca/events/undergraduate\\_mentorship.htm](http://www.neuroscience.utoronto.ca/events/undergraduate_mentorship.htm)

On **Tuesday, October 22**, the CPIN Undergraduate Mentorship Program hosted its first event of the year, the Graduate Student Q&A Panel. It was held from 5:30 – 6:30 pm in the Medical Sciences Building, Room 3227.

The Event featured a Graduate student panel that fielded numerous Grad school-related questions from an undergraduate audience. Questions covered the Grad school application process, life as a research student, selecting a PI, scholarship applications, interview prep, and more! Five CPIN students served as panelists: **Marija Zivcevska, Catharine Mielnik, Azin Esmaelbeigi, Sarah Ahmed, and Nadia Zafar**. Following the panel, there was a Networking and Mixing event with pizza and refreshments served. The undergraduates had the opportunity to interact informally with the panelists and the CPIN Director, **Dr. Zhong-Ping Feng**. CPIN Mentorship Executive members **Aeen Amini, Anna Vasilevskaya, and Raymond Wong** were present to help coordinate the evening. The event was a great start to the Mentorship Program for the 2019/ 2020 year!

There was an important by-product to the evening's success and its preparations. The event was heavily publicized by the Mentorship Executive via numerous posters around the U of T campus, Facebook posts, Twitter, and twice on the undergraduate department listservs. In addition to registering for the Panel, many undergraduates simultaneously registered as mentees for the program. Mentees receive a CPIN Graduate student mentor that provides advice throughout the Graduate application process. Given their interest in neuroscience, a number of these undergraduates may serve as CPIN students and executives in the future. As October 22 approached, more and more undergraduates registered as mentees. The process of matching mentees has been completed, and the Executive is really looking forward to the next workshop!

*(Event report by Aeen Amini)*

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