Physiology
UNIVERSITY OF TORONTO

PhysioLINK

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MESSAGE FROM THE CHAIR

I would like to take this opportunity to welcome everyone back for the start of the Fall term. I hope you all had a great summer. The Department is ready for an exciting Fall semester, and I look very much forward to another exciting year in Physiology!

Scott P. Heximer, PhD
Ernest B. and Leonard B. Smith Chair,
Department of Physiology
Temerty Faculty of Medicine

2022 Spring Convocation

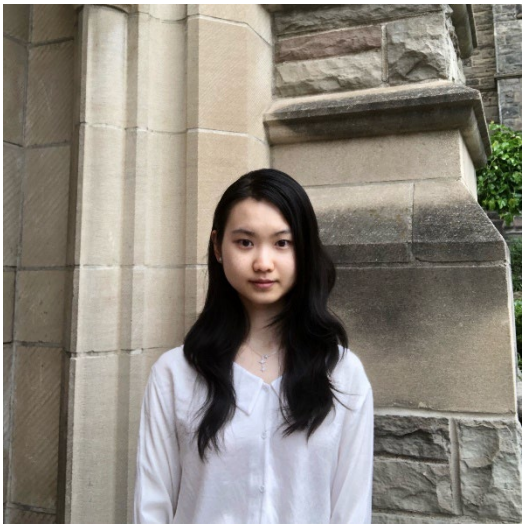
Many congratulations to all of the trainees below on the successful completion of their Graduate Programs. We wish them continued success in the next stage of their careers!

Lastname	Firstname	Program	Supervisor
Ben Zablah	Youssif	PhD	Jia Z
Joseph	Deborah	MSc	Giacca A
Martchenko	Sarah	PhD	Brubaker P
Kurjanowicz	Pamela	PhD	Librach C

HONOURS & AWARDS

Many congratulations to our learners!

Setareh Malekian Naeini – 2021-22 winner of the **Colin Bayliss Award** for top graduating Physiology Specialist student.



Xinyue Zhang - 2021-22 winner of the **Christopher Perumalla Award** for the top graduating Major student in Physiology.

Melissa Misztal Wins MHSc in Medical Physiology Award

Each year, the Department of Physiology issues the MHSc in Medical Physiology Award to honour the accomplishments of one student in the program who has achieved excellence not only in PSL4010Y (Mentored Literature Review in Physiology) but also across their entire MHSc program (excluding the practicum).
physiology.utoronto.ca

PHYSIOLOGY KEEPS GROWING!

A warm welcome to **Jiannis Taxidis PhD**, our newest faculty member hired through a joint search between Physiology & SickKids (Neurosciences & Mental Health research program).

My goal is to understand how neuronal circuits collectively encode our experiences and the temporal intervals between them, how they store those as memory and how these processes go awry in conditions associated with memory deficits.

In my undergraduate studies at the Aristotle University of Thessaloniki (Greece) and my Master studies in Utrecht University (The Netherlands) I received extensive training on theoretical and applied mathematics and physics. During my PhD at Nottingham University (UK) and my postdoctoral work with Christof Koch at Caltech, I gained expertise in complex computational modeling and analyses of large-scale electrophysiological data. I developed network models of hippocampal areas CA3-CA1 which demonstrated how high-frequency 'ripples', crucial for memory consolidation, are generated in the hippocampus (Taxidis et al., 2012, 2013) and how spiking pattern reactivations during ripples are reflected in extracellular signals (Taxidis et al., *Neuron*, 2015). At my postdoctoral research with Peyman Golshani at UCLA, I transitioned to calcium imaging and optogenetic manipulations in awake behaving animals. Using *in vivo* two-photon calcium imaging in mice during learning of an olfactory memory task, I showed that hippocampal sequences combine strikingly stable representations of fixed sensory inputs with highly dynamic representations of the variable temporal intervals between them, allowing flexible linking of stable memory cues (Taxidis et al. Neuron, 2020). Recently, I have pioneered the use of high-frequency, *in vivo* voltage imaging of cell-type-specific interneurons during memory-driven behavior, using novel versions of genetically encoded voltage indicators (manuscript in preparation).

In my laboratory, I will combine my current expertise on (i) *in vivo* calcium/voltage imaging and behavioral assays with (ii) my background on biophysical computational modeling and complex mathematical analyses of neurophysiological recordings. This holistic Systems Neuroscience approach will give me a unique opportunity to thoroughly investigate how hippocampal population dynamics are associated with learning or recalling a behavioral context and how these dynamics are disrupted in conditions associated with memory deficits, particularly schizophrenia.

Please feel free to reach out to personally welcome Jiannis to Physiology! jtaxidis@g.ucla.edu

NEW Status-Only Faculty Members

We are delighted to welcome **Dr. Nicole McKinnon and Dr. Ewan Goligher** as Physiology's newest status-only faculty members!

Nicole McKinnon MD, PhD is a staff physician in the Department of Critical Care Medicine, Scientist Track Investigator at the Sickkids Research Institute, Assistant Professor of Pediatrics and Physiology at The University Toronto who specializes in pediatric neuro-critical care. She completed her MD and PhD at Albert Einstein College of Medicine in The Bronx, NY, followed by a residency in Paediatrics at the Morgan Stanley Children's Hospital at Columbia University Medical Center, and fellowship in Paediatric Critical Care at the Children's Hospital Colorado. She then undertook an additional year of training in the developing field of paediatric neuro-critical care at the Hospital for Sick Children. She was awarded the Transitional Clinician Training Award in 2019. Her laboratory works on understanding how sedative medications affect neuronal communication and network changes following acquired brain injury using a combination of behavioural outcomes and electrophysiologic studies. Her priority at the bench and bedside is improving neuro-cognitive outcomes for children after critical illness. nicole.mckinnon@sickkids.ca

Ewan Goligher MD, PhD is an Assistant Professor in the Interdepartmental Division of Critical Care Medicine at the University of Toronto and a Scientist at the Toronto General Hospital Research Institute. After studying biochemistry and medicine at the University of British Columbia, he trained in Internal Medicine and Critical Care Medicine at the University of Toronto and subsequently earned a doctoral degree in physiology from the University of Toronto, focusing on diaphragmatic dysfunction during mechanical ventilation. His research program focuses on characterizing the mechanisms and impact of injury to the lung and diaphragm during mechanical ventilation and on the use of innovative clinical trial designs to test lung and diaphragm-protective ventilation strategies. ewan.goligher@uhn.ca

GASP EXECUTIVE 2022-23

We are delighted to announce the GASP Executive Council members for the 2022-23 academic year:

- **President:** Raina Ladha (Horner lab)
- **Vice Presidents:** Radu Gugustea (Jia lab), Alicia Gibbs; (Zhang lab), Delphine Ji (Sun lab)
- **Financial Advisor:** Rayan Saghian (Wang lab)
- **Admin Advisor:** Raphael Chan (Wang lab)

We look forward to all of the exciting initiatives and social events that GASP will offer over the coming year!

We would also like to take this opportunity to **THANK** the outgoing GASP Executive Council members for a truly outstanding year representing Physiology's graduate students – **job well done!**

- **President:** Yasaman Mostafaie (Bolz lab)
- **Vice Presidents** Joseph Lee, MSc, (Connelly lab); Kelvin Fu-Tsuen Lee, (Seed lab); Eman Nishat (A Wheeler lab)
- **Financial Advisor** Raina Ladha (Horner lab)
- **Admin Advisor:** Radu Gugustea (Jia lab)

GASP BBQ

The annual BBQ is back!

Friday September 23rd, 2022

12:00 – 5:00 pm

Christie Pits Park
750 Bloor St West

FOOD – GAMES – BASEBALL

Please join us as we welcome the new academic term!

All trainees/faculty/staff are welcome – hope to see you there!

Keep staying safe everyone!

Please continue to visit the central hub for the U of T community

UTogether