Western
Institute for
Neuroscience

Three WIN Trainees Awarded 2024 CAN- CIHR-INMHA Brain Star Awards from the Canadian Association for Neuroscience

Western Institute for Neuroscience
May 7, 2025

The Canadian Association for Neuroscience (CAN) and the Canadian Institutes of Health Research, Mental Health and Addiction (CIHR-INMHA) have announced the winners of the 2024 Brain Star Awards.
The CIHR-INMHA Brain Star awards, administered by the Canadian Association for Neuroscience, are awarded to students and trainees who have published high impact discoveries in all fields and disciplines covered by CIHR's Institute of Neurosciences, Mental Health and Addiction in the 2024 calendar year.

Three of the winners are trainees right here at Western University and are members of the **Western Institute for Neuroscience.**
Congratulations to **Caroline Nettekoven, Diego Piza,** and **Hayley Shanks** on receiving this prestigious honour.

Dr. Caroline Nettekoven performed her award winning work as a postdoctoral research fellow in the laboratory of **Joern Diedrichsen** at Western University. She is interested in understanding how the human cerebellum and neocortex interact to enable complex behaviours such as movement, language, and social cognition. Her research combines ultra-high field multi-modal neuroimaging with machine learning approaches and brain stimulation. Studying the cerebellum is challenging, because it consists of many regions that care about different behaviours. A detailed atlas of these regions that shows where they lie in different people did not exist. The paper introduces a such an atlas.

"This cerebellar atlas was truly a collaborative effort, made possible by the contributions of many researchers across multiple labs". Said Nettekoven. "I'm thrilled to see how widely it has already been adopted by the community. It's incredibly rewarding to see it supporting so many different lines of research".

Dr. Nettekoven sees this work as having the potential to change how we understand the human cerebellum.

She goes on to say “It’s been incredibly rewarding to see the atlas being used by so many groups already. That kind of early adoption speaks to both the need and the value of this resource in the field.”
Her and Dr. Diedrichsen’s teams hope was to provide a tool that would be useful to the field and really accelerate research into the human cerebellum. Nettekoven says it’s been exciting to watch it start doing exactly that.

Diego Fernando Buitrago Piza performed his award winning work as a Ph.D. student in the laboratory of **Julio Martinez-Trujillo** at Western University.
The award winning publication represents a major technical and conceptual achievement in neuroscience.
Piza describes the winning work in his own words as: “The hippocampus is a structure of the mammalian brain that has been implicated in spatial memory and navigation. Its role has been primarily studied in nocturnal mammals, such as rats, that lack many adaptations for daylight vision. Here, we designed a novel multi-modal experimental set-up that combines in vivo electrophysiology with 3D tracking to investigate neural circuits involved in 3D spatial navigation in marmoset monkeys.”
He went on to describe that the team “…found that during 3D navigation, the common marmoset, a New World primate adapted to daylight, uses different exploration–navigation strategies compared to rats. We further found that neurons in the hippocampus represent space by primarily anchoring their firing to distinct visual scenes rather than to GPS-like coordinate maps, as observed in rodents. Lastly, we found that inhibitory neurons play a key role in representing the dynamics of navigation, with velocity signals arriving and being encoded in these cells before reaching excitatory neurons.

This work was supported by the Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Provincial Endowed Academic Chair in Autism, Canada Foundation for Innovation, Western University BrainsCAN award grant, and Healthy Brains, Healthy Lives.
This study not only advances the understanding of spatial cognition but also offers a broader framework for investigating how ecological adaptations shape brain function across species.

Hayley Shanks is a Neuroscience PhD student at Western University, conducting research in the laboratory of **Dr. Taylor Schmitz** with co-supervision from **Dr. Stephen Pasternak**. Shanks led key aspects of the award winning project's analytical development. Looking ahead, she is passionate about advancing therapeutics through clinical research and plans to build a career focused on clinical trial development and execution.

The trial was sponsored and funded by PharmatrophiX and the National Institute on Aging. The Alzheimer's Drug Discovery Foundation and the Alzheimer's Association provided funding for preclinical and phase 1 trials.

Shanks describes her work as "...investigating a novel therapeutic for Alzheimer's disease called LM11A-31, which takes an innovative approach to treatment by aiming to promote neuronal resilience, as opposed to the prominent strategy of clearing protein aggregates."

She goes on to say "I am incredibly grateful to receive a Brain Star Award recognizing our recent publication on the first clinical trial of LM11A-31 in individuals with Alzheimer's disease. In this study, we found that LM11A-31 was safe and attenuated changes in biomarkers of synaptic loss, glial activation, and neuroimaging measures of grey matter degeneration and glucose metabolism. Looking ahead, these findings support the need for larger-scale clinical testing with LM11A-31, potentially advancing a promising new therapeutic towards clinical use."

The Western Institute for Neuroscience is thrilled for the winners and offer our sincerest congratulations.