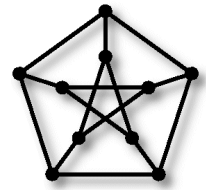# University of Guelph — School of Computer Science

# Computationally Speaking

## Seminar Series

**Title:** **Neuroinflammation: can AI help brain?**

**Speaker**: Dr. Denis Gris
**Where**: Reynolds 1101
**When**: **Thursday November 21st 2019, 1:00 – 2:00pm**

**Abstract:** Neuroinflammation is one of the central homeostatic mechanisms that play an essential role in the central nervous system development, aging, and pathologies. Multiple Sclerosis is an example of a sudden shift of balance, provoking the immune system to attack the brain. What are the mechanisms that underly this self-attack? How can we prevent or reverse it? Can we model brain pathophysiological changes by observing animal behavior? These are the types of questions that may help to find treatments not only for multiple Sclerosis but other neurodegenerative diseases. By utilizing behavioral automated video assessment, in-vitro, and in-vivo models, we found that innate immune receptors regulate tissue inflammation and define the increased risk of developing autoimmunity. We found that innate immune receptors regulate not only putative inflammatory processes but composition of the biochemical milieu of the brain. Therefore, the downstream effect of the misregulation of these proteins results in a profound change in animal behavior and may manifest approaching disease.

**About the Speaker:** Denis Gris is an associate professor from the University of Sherbrooke medical school, where he teaches and studies the role of neuroinflammation in health and disease. Dr. Gris received his Ph.D. from the Neuroscience program at the University of Western Ontario. Later he moved to Chapel Hill NC, where he discovered novel mechanisms that underly inflammation in the brain. Currently, He is developing new approaches in studying inflammation through modeling animal behavior.