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Barak Pearlmutter Maynooth University

“Adventures on the Road to Differentiable Programming”



**Friday, July 6, 2018
11:00am
CIT 477 Lubrano**

Co-sponsored by the CS Sysread Group

Abstract: We are on the verge of a magical era in which everything around us becomes responsive and adaptive. To make this happen, it needs to be easy to make computer programs adaptive, and the path we see ahead is differentiable programming, which requires (among other things) the ability to compute derivatives (primarily gradients) of arbitrary programs. These differentiation operators should be first class: general, robust, performant, and deeply embedded in compilers. We will discuss steps that have been taken along this road, and some stumbling blocks.

Professor Barak Pearlmutter received a BS in Mathematics from CWRU, a PhD in Computer Science from Carnegie Mellon University (where he worked on neural networks the second time they were cool), postdoctoral training in Neuroscience at Yale University, and spent several years in Industry at Siemens Corporate Research and on the faculty at the University of New Mexico. He is currently in the Department of Computer Science at Maynooth University, in Ireland. His main current research interests are two-fold: understanding information processing in the brain, and figuring out how to build artificial systems that exhibit brain-like performance. The focus of the former is currently on exploring criticality in the brain, while the latter is upon building mathematical formalizations and programming languages that support the construction of complex adaptive systems.

Host: Michael Littman/HCRI