On Improving the Quality of Deep Learning Programs

Nowadays, we are witnessing an increasing demand in both industry and academia for exploiting Deep Learning (DL) programs to solve complex real-world problems. A DL program encodes the network structure of a desirable DL model and the process by which the model learns from the training dataset. Like any software program, a DL program can be faulty, which implies substantial challenges of software quality assurance, especially in safety-critical domains. In this talk, I will present some of the techniques that we have developed to help practitioners locate and fix faults in their Deep Learning programs. I will also report about some empirical studies that we have conducted to understand the impact of poor coding practices on the maintainability of deep learning programs.

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2:30PM - 3:30PM

Foutse Khomh

Foutse Khomh is a Full Professor of Software Engineering at Polytechnique Montréal and FRQ-IVADO Research Chair on Software Quality Assurance for Machine Learning Applications. He received a Ph.D. in Software Engineering from the University of Montreal in 2011, with the Award of Excellence. He also received a CS Can/Info-Can Outstanding Young Computer Science Researcher Prize for 2019. His research interests include software maintenance and evolution, machine learning systems engineering, cloud engineering, and dependable and trustworthy ML/AI. His work has received three ten-year Most Influential Paper (MIP) Awards, and six Best/Distinguished paper Awards. He has served on the program committees of several international conferences including ICSE, FSE, ICSM(E), SANER, MSR, and has reviewed for top international journals such as EMSE, TSC, TPAMI, TSE and TOSEM. He is on the steering committee of SANER (chair), MSR, PROMISE, ICPP (chair), andICSME (vice-chair).