Speaker: Hung Q. Ngo

Title: Optimization techniques for a Datalog-inspired query language

Abstract: In this talk, I will outline some query optimization and evaluation techniques that the query optimizer for the RelationalAI logic engine adopts in production. These are techniques invented by the database theory community over the past 15 years or so, designed to optimize a logic-based query language. In particular, the RelationalAI query language is an extension of datalog and thus it is suitable to be optimized using these techniques. The key ingredients covered in the talk include worst-case optimal join algorithms, sum-product queries over semi rings, variable elimination, tree decomposition, and tensor decomposition.

Brief biography: Hung Ngo has been a Vice President of Research at RelationalAI since 2017, where he also led the design and implementation of the query optimizer for the logic engine. From 2001 to 2015, he was a professor of Computer Science and Engineering at the state university of New York at Buffalo. He received best paper awards at COCOON 2008, ICDT 2019, PODS 2012, 2016, 2022, and the Alberto Mendelzon Test-of-Time awards for papers from PODS 2012 and PODS 2015.