

Faculty Candidate Seminar – Software Engineering Assistant/Associate/Full Professor of Engineering Practice

Tony Lowe
DePaul University

Thursday, February 2, 2023

Presentations: 10:30 A.M. – 11:10 A.M. and 11:15 A.M. – 11:45 A.M.

Reception: 11:45 A.M. – 12:15 P.M.

MSEE 112

Teaching Computing to the Whole Brain

Abstract: Ask most professional programmers how exactly they do their job, and there will be aspects that defy explanation. Why did you choose that design? What trick did you use to debug that code? How do you know if this is right? These questions and others often are often answered with a shrug and “it felt right?” Computing education researchers label such knowledge as “expert intuition” or simply expertise. But how can new programmers acquire ‘expertise’ without waiting for years of experience? After two decades as a Software Engineer and nearly as much time teaching, I had a wealth of experience but was far from articulating the answer to this paradox. I embarked on a five-year journey asking about the nature of experience and learning, particularly around computing culminating in a Ph.D. and a few ideas.

The first part of my presentation demonstrates a few of the practical ways to ‘train expertise’ in a classroom. I will share how I shift content, assessment, and policies to encourage ‘expertise’ in computing and professional concepts (often well beyond the core curriculum). The second half of my presentation revisits the teaching demonstration to break down the theory and science behind my course design. I will share how my professional experience influences my teaching style and how, as a Professor of Practice, I hope to make a global impact on computing education research.

Bio: Tony Lowe spent two decades+ in industry, wiring code and architected solutions for GPS receivers, the 767-400, financial systems, governments, non-profits, and healthcare before receiving his Ph.D. from Purdue’s School of Engineering Education in 2020. Teaching accompanied practice throughout his career, working as a corporate trainer, educational consultant, and adjunct professor before transitioning to full-time academic teaching. As a professor, Tony has pioneered classroom initiatives to bring professional practices to the classroom, make computing more accessible, and apply some of the ideas discussed in this session. His research looks to continue investigating the gap between experts and novices so that we can expand the talent pool and better train future computing professionals. Outside of work, he enjoys long hikes with the dogs, the Ultimate (Frisbee) field, and cooling off with a few laps in the pool.