

YEDITEPE UNIVERSITY
Department of Computer Engineering

SEMINAR

April 17, 2025 (Thursday)

14:00 – 14:50

Engineering Faculty A-412 Seminar Room

**LEARNING FROM THE EXPERTS: AI FOR AUTOMATED
GENERATION OF HYPER-HEURISTICS IN VEHICLE
ROUTING**

Prof Ender Özcan

University of Nottingham, School of Computer Science, COL Lab

Designing an effective selection hyper-heuristic is a challenging task, often requiring deep domain expertise. In this talk, we introduce an AI-driven approach that automates this process by learning from existing expert-designed methods. Using a time delay neural network, the system observes expert behavior on training instances of the open vehicle routing problem, then generates new hyper-heuristics capable of generalising to unseen scenarios. Experimental results demonstrate improved performance compared to the original expert methods on standard benchmarks.

Biography

Ender Özcan is a Professor of Computer Science and Operational Research at the University of Nottingham, working with the Computational Optimisation and Learning Lab in the School of Computer Science. His research interests and activities lie at the interface of Computer Science, Artificial Intelligence and Operational Research. Prof Özcan has expertise in computational optimisation for intelligent decision support leveraging heuristics, hyper-heuristics, metaheuristics combined with data science, tackling challenging real-world problems. He is a co-chair and co-founder of the EURO Working Group on Data Science Meets Optimisation. He is Associate Editor of the Journal of Scheduling and Engineering Applications of Artificial Intelligence and other journals.

Prof Özcan received his PhD in Computer and Information Science from Syracuse University in 1998. He then worked as a lecturer in Computer Engineering at Yeditepe University, founding the ARTificial Intelligence research group. In 2008, Prof. Özcan joined the University of Nottingham as a senior research fellow for the EPSRC-funded LANCS initiative. Since then, he has held various academic positions and currently serves as Director of the Faculty of Science Doctoral Training Centre in Artificial Intelligence.