JOHNS HOPKINS
WHITING SCHOOL
of ENGINEERING

Civil and Systems Engineering

THE JOHNS HOPKINS UNIVERSITY
ROSS B. COROTIS LECTURE FOR
CIVIL AND SYSTEMS ENGINEERING

AI ENGINEERING FOR SOCIETAL IMPACT

PASCAL VAN HENTENRYCK

A. RUSSELL CHANDLER III CHAIR AND PROFESSOR,
H. MILTON STEWART SCHOOL OF INDUSTRIAL AND SYSTEMS
ENGINEERING, GEORGIA INSTITUTE OF TECHNOLOGY

WEDNESDAY, NOVEMBER 6, 2024

5:30 TO 6:30 P.M.

SPACE TELESCOPE
SCIENCE INSTITUTE
3700 San Martin Drive
Baltimore, 21218

Reception to follow (by RSVP only).

AI ENGINEERING FOR SOCIETAL IMPACT

The fusion of AI with optimization and control has the potential to deliver outcomes that are beyond the realm of these technologies when applied independently on complex engineering applications. This talk reviews the theoretical foundations underlying this fusion, including the concepts of primal and dual optimization proxies, predict then optimize, self-supervised learning, and deep multi-stage policies. The presentation also highlights these methodological developments in sustainable supply chains, electrical power systems with massive shares of distributed energy resources, and transportation systems that may transform accessibility to jobs, education, and health-care.

PASCAL VAN HENTENRYCK

A. RUSSELL CHANDLER III CHAIR AND PROFESSOR, H. MILTON STEWART SCHOOL OF INDUSTRIAL AND SYSTEMS ENGINEERING, GEORGIA TECH

Pascal Van Hentenryck is the A. Russell Chandler III Chair and Professor at Georgia Institute of Technology, the director of the NSF Artificial Intelligence Institute for Advances in Optimization (AI4OPT), and the director of Tech-AI, the AI hub at Georgia Tech. Van Hentenryck's research focuses on artificial intelligence for engineering and science and, in particular, energy, supply chains and manufacturing, transportation, and health care. Earlier in his career, Van Hentenryck designed and implemented several widely used optimization systems, including the constraint programming language CHIP (the foundation of modern constraint-programming systems) and the modeling language OPL (now an IBM product).

ABOUT THE ROSS B. COROTIS LECTURE

The Ross B. Corotis Lecture for Civil and Systems Engineering was established at Johns Hopkins University to commemorate the engineer who established the University's Department of Civil and Systems Engineering. The lecture is endowed by alumni, faculty, and friends of the department in honor of prominent structural engineer, Ross B. Corotis, which contributes to the ongoing guest seminars in the Department of Civil and Systems Engineering and provides for these special lectures.

Ross B. Corotis, NAE, is an emeritus professor of engineering at the University of Colorado Boulder. He researches the coordinated roles of engineering and social science in framing and communicating long-term hazard risks and resiliency for the built environment. With three degrees from MIT, he was on the faculty at Northwestern University, established the Department of Civil Engineering at Johns Hopkins University, and was Dean of Engineering at CU Boulder.

He has chaired committees on structural safety for ASCE and ACI, the Advisory Committee of IASSAR, served as science advisor for the Department of State in Washington, D.C., and was editor of the journals Structural Safety and ASCE's Journal of Engineering Mechanics. For the National Academies, he served on the Building Research Board, the Disasters Roundtable, the Board on Infrastructure and the Constructed Environment, chaired the Laboratory Assessment Board, was founding chair of the Committee on NIST Technical Programs, and was chair of the Civil & Environmental Engineering section of the NAE.

He is a registered professional engineer and structural engineer, Distinguished Member of ASCE, Fellow of the Structural Engineering and Engineering Mechanics Institutes, recipient of the ASCE OPAL Lifetime Achievement Award in Education, and author of more than 250 publications.

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