You are cordially invited to **IEEE ComSoc Distinguished Lecture** on:

Advanced Strategies and Technologies, Including AI, for Optimizing Optical Communication Networks

By Prof. Wahab Almuhtadi

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DATE: February 20, 2025
TIME: 14h30
PLACE: Salle du conseil – Espace Turing Room - 7th Floor
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Abstract:

In recent years, we have been observing fast social and economic development, rapidly changing industry, and continuously growing demand for bandwidth. This development raises new challenging optimization problems for the optical communication networks.

These problems are often very complex not only due to the optical network configurations, but also due to their enormous traffic and operation al complexity. The whole networking industry is being disrupted and bandwidth availability is worsening by the rapid deployment and continuing adoption of 5G and IoT, the use of which involves tens of billions of end-users (humans-to-machines, and machine-to-machines), interconnecting with each other and driving increased consumer and business interactions.

There is an upsurge in communication networks demand, driven by millions of end-to-end user devices, and recently by premium/basic/utility ultra-mobile users who want the ability to access services like the cloud network to consume high-definition contents, videos, and applications when and where they so choose. Today's networks were evidently not designed to accommodate or adjust to these unanticipated growing and unpredictable demands.

To address these challenges, networks must be adaptive to enable service providers and operators to optimize their existing communication network infrastructures while incorporating new technologies and ways of working. Several studies and trials around the open software, platforms, and systems, the use of open APIs, AI, multi-vendor management, streaming network telemetry for a real-time data collection, analytics, and service automation have been critical in helping service providers and operators understand what is needed to evolve and optimize networks. There is a need for an effective optimization solution method to improve the OAM&P of the optical communication networks.

During this talk, the speaker will conduct a live and real-time connection to the Ciena Optophotonics Lab at Algonquin College (Ottawa Canada) to demonstrate how these optical communication networks work and how they can be adaptive and optimized.

Distinguished Lecturer's Bio:

Prof. Almuhtadi has over 32 years of industry experience, and in parallel, over 26 years of university teaching experience. He's Professor/Coordinator of "Optical Systems and Sensors" Program, Algonquin College/Carleton University, Canada. He's Research Council Member, Digital Research Alliance of Canada Previously. Prior to that he was Senior System Engineer at Nortel, Optical Solutions R&D. With his professional background, he demonstrated outstanding leadership in establishing Applied Research with $10.5M fund that fostered Algonquin College to become a Polytechnic Institution. He's the founder of the $6M cutting-edge Optophotonics Lab/Optical Communications Network 200 Gbps, the only lab of its kind in any educational institute. He's one of the founders of $65M "Centre of Excellence in Next Generation Networks-CENGN". He published several technical papers and books. He received several awards from IEEE, academia, and industry, e.g., 2010 IEEE Leadership Award, 2015 IEEE Canada W.R. Service Award, 2009 Laurent Isabelle Teaching Excellence, 2006-NISOD Award, and 2015-Canadian Pacific Railway Engineering Medal, Engineering Institute of Canada-EIC. He's P.Eng. and EIC Fellow. Dr. Almuhtadi earned his M.Sc. and Ph.D. in Electrical Engineering from Brno University of Technology, Czech Republic in 1986 and 1990 respectively.

Dr. Almuhtadi is actively involved in IEEE over 30 years serving in many executive level posts across IEEE (IEEE TAB/MGA, Society Region, Section, Chapter, Committee, Student Branch). Just to name a few, He is a Distinguished Lecturer in IEEE Communications Society (ComSoc), he served as Member of ComSoc Board of Governors and Director of ComSoc North American Board (2019-2020), as well as served and still serving in many ComSoc Committees.

Dr. Almuhtadi served also as the President and the Chair of Board of Governors of IEEE Consumer Technology Society - CTSoc (2019-2022) and served as a Member of the IEEE Technical Activities Board-TAB (2019-2022). He served as: Vice President of Education of IEEE CTSoc (2017-2018); Chair of IEEE Canada Publications & Communications Group (2017-2019). He is serving as Director, IEEE Canadian Foundation (2011-present), Chair of IEEE ComSoc/CTSoc/BTS Ottawa Joint Chapter (2008-present); Vice-Chair of Ottawa Section Senate (2009-present); Chair of Ottawa Section Award Committee (2005-present). Dr. Almuhtadi has organized and chaired 35+ national and international engineering conferences and symposia (e.g. Executive Conference Chair of IEEE ICC 2012 and ICC 2021; and currently IEEE ICC 2025 Montreal).

Dr. Almuhtadi is currently serving as Member of ComSoc Board of Governors and Director of ComSoc Industry Community Board.

He is also the IEEE Canada President-Elect/IEEE Region 7 Director-Elect (2024-2025) and Member of IEEE Board of Director.