Workshop: Leaders of Tomorrow

June 7th, Sears Atrium, TMU

245 Church Street, Toronto

Full Program

		Speakers	Chair
9:30-9:40	Welcome and Opening Remark	Ping Wang (VTS Education Committee Chair) Taimoor Abbas (VTS YP Committee Chair)	Lian Zhao
9:40-10:10	Keynote 1: Wen Tong, Huawei Technologies	Wireless Communications with/for/via Artificial General Intelligence (AGI)	Dongmei Zhao
10:10-10:40	Keynote 2: Shahrokh Valaee, University of Toronto	Sensing and Localization for Next Generation Wireless Technologies	Dongmei Zhao
10:40-11:10	**Coffee Break, Group Photos, Project Evaluation**		
11:10-12:10	YP Presentations	**4 talks, 15 mins each, total 60 mins** 1. Hussein Ammar (11:10-11:25) 2. Ajmery Sultana (11:25-11:40) 3. Sunila Akbar (11:40-11:55) 4. Afsoon Shamsabadi (11:55-12:10)	Ping Wang Hina Tabassum
12:10-14:00	**Lunch, Networking, Project Evaluation**		
14:00-14:45	YP Presentations	**3 talks, 15 mins each, total 45 mins** 5. Lilatul Ferdouse (14:00-14:15) 6. Javane Rostampoor (14:15-14:30) 7. Mustafa Ammous (14:30-14:45)	Xavier Fernando
14:45-16:00	Industry Panel	Moderator: **Jie Gao**, Carleton University Panelist: **Firoozeh Khalily**, Rogers Communications **Taimoor Abbas**, InterDigital **Raghav Thanigaivel**, Telus **Moshiur Rahman**, Ericsson **Xiaoguang (John) Huang**, General Motors	Jie Gao
16:00-16:30	**Coffee Break**		
16:30-17:00	Draw prize (Registered Students)	Mushu Li and Menglu Li	
	Awards Certificates	TBD	
	Closing Remark	Raghav Thanigaivel (Coordinator, IEEE Region 7 YP Committee) Xavier Fernando (former IEEE Toronto Section Chair, IEEE Central Area Chair)	

Keynote Speech 1: Wireless Communications with/for/via Artificial General Intelligence (AGI)

Abstract: In this talk, we introduce a novel paradigm for wireless communications tailored to the evolving landscape of Artificial General Intelligence (AGI). The forthcoming revolution in AI technologies is poised to transform every facet of our daily lives and professional endeavors. Yet, the pivotal question remains: how can we ensure seamless delivery of AGI services and applications to anyone, anywhere, and at any given time? This emerging challenge necessitates a fundamental shift in how we engage with AGI, calling for innovative networking architectures and advancements in communication technologies. Here, we offer our perspectives and architectural insights into the integration of intelligence within the realm of 6G wireless connectivity.

Dr. Wen Tong is the CTO, Huawei Wireless and a Huawei Fellow. He is the head of Huawei wireless research, and the Huawei 5G chief scientist and led Huawei's 10-year-long 5G wireless technologies research and development. He was elected as a Huawei Fellow and an IEEE Fellow, a Fellow of Canadian Academy of Engineering, and a Fellow Royal Society of Canada. Dr. Tong was the recipient of IEEE Communications Society Industry Innovation Award in 2014, and IEEE Communications Society Distinguished Industry Leader Award for "pioneering technical contributions and leadership in the mobile communications industry and innovation in 5G mobile communications technology" in 2018. He is also the recipient of R.A. Fessenden Medal. For the past three decades, he had pioneered fundamental technologies from 1G to 6G wireless and WiFi with more than 550 awarded US patents.

Keynote Speech 2: Sensing and Localization for Next Generation Wireless Technologies

Abstract: With the extended service, next generation wireless systems, 6G wireless networks will give rise to new challenges which include the employment of massive MIMO systems, the mmWave spectrum and the agility of networks. A crucial aspect of 6G systems is the necessity for precise sensing and localization. The emergence of new research activities in Integrated Sensing and Communication (ISAC) is to find answers to some of these open and important problems. In this talk, we will discuss how sensing and positioning can be key enablers of the next generation of wireless systems, and what challenges sensing and localization technologies will face when integrated with the new wireless networks.

Dr. Shahrokh Valaee is a Professor with University of Toronto, and the holder of Nortel Chair of Network Architectures and Services. He is the Founder and the Director of the Wireless Innovation Research Laboratory (WIRLab) at the University of Toronto. Professor Valaee is a Fellow of the Engineering Institute of Canada and a Fellow of IEEE. Professor Valaee has servered the Technical Progrom Co-Chair and Local Organizing Chair for numerious IEEE conferences, such as IEEE Personal Mobile Indoor Radio Communication (PIMRC) Symposium 2011, 2017, and 2023, and the Track Co-Chair of WCNC 2014, PIMRC 2020, VTC Fall 2020. He has been Editor for IEEE Signal Processing Letters, IEEE Transactions on Wireless Communications, Journal of Computer and System Science. He is a Distinguished Lecturer of the IEEE Communications Society and Vehicular Technology Society. He was the recipient of the best paper award in the IEEE Machine Learning for Signal Processing (MLSP) 2020 workshop.

Panel Title: Succeed Professional Career in the IT Engineering Industry

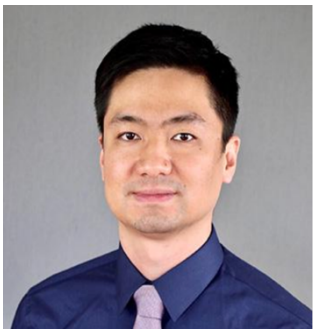
The landscape of the engineering industry is changing fast due to technological evolution and global competition. Correspondingly, the technical and soft skills for securing a position and establishing a fruitful career also differ now from the past, while new challenges emerge constantly. This panel will focus on following three aspects of succeeding in the engineering industry today.

- First, our panelists will provide advice on job hunting, sharing their experiences from the perspectives of applicants and interviewers.
- Second, the panel will discuss the transition from university to the workplace, adapting to the work environment, and developing a career at an early stage.
- Last, the panelists will illustrate the impact of the rapidly developing artificial intelligence (AI) on the tech industries, the challenges arising from that, and the new knowledge and skill sets job seekers and engineering professionals may need to be aware of and equip themselves with.

Panel moderator: Jie Gao, Assistant Professor, Carleton University, YP Ambassador, IEEE VTS

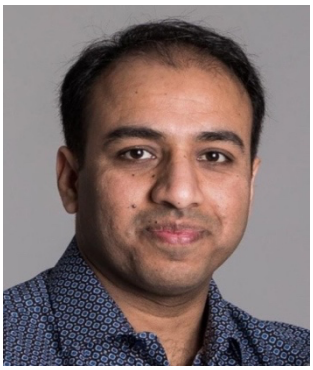
Panelists:

Firoozeh Khalily, VP, National Field Operations, Rogers Communications
Taimoor Abbas, Senior Staff Research at InterDigital Inc., YP Committee Chair of IEEE VTS
Raghav Thanigaivel, Senior Engineer at Telus, Coordinator for IEEE Region 7 YP Committee
Moshiur Rahman, Systems Architecture, Ericsson, Ottawa
Xiaoguang John Huang, Senior Engineering, General Motors



Jie Gao received his Ph.D. degree in electrical engineering from the University of Alberta, Edmonton, Canada. He worked as a postdoctoral fellow with Toronto Metropolitan University, a research associate with the University of Waterloo, and an Assistant Professor with Marquette University, Milwaukee, USA. Dr. Gao is currently an Assistant Professor at the School of Information Technology, Carleton University, Ottawa, ON. He is a senior member of IEEE, the IEEE Sensors Council Representative for VTS, and a YP ambassador of VTS.

Firoozeh Khalily's career spans over 25 years in the telecommunications industry, with a proven tracking record in driving exceptional customer experience and operational improvements. She has held various leadership positions, capitalizing on her specialized knowledge of technology, product management/development, supply chain, and field operations. Firoozeh is an empowering leader and is passionate about enabling future leaders to grow and thrive. She has advised leaders for over ten years as a business executive, mentor, and board member. Firoozeh sits on the board of Directors of Mysa, a consumer electronic company, and is the Humber College Institute of Technology Electronic Engineering Program Advisory Committee chair. She holds a B.Sc. in Applied Physics and a master's degree in mechanical engineering from the University of Waterloo. She has completed the Executive Education Program at Harvard Business School.



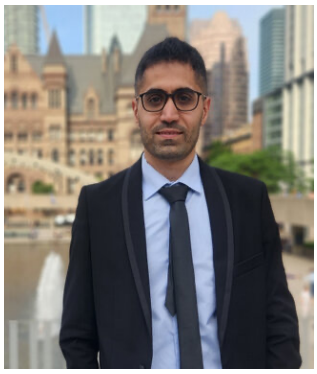
Taimoor Abbas is currently with InterDigital as Senior Staff Researcher and has 14 years of experience in wireless communication industry. He has received his MSc and PhD degree in Electrical Engineering from Lund University Sweden in 2009 and 2014. He has received MSc in Electronics from Quaid-i-Azam University Islamabad, Pakistan in 2006. He was co-founder and CEO of ICV-TECH AB (2019-2022), also worked at Volvo Cars Sweden (2014-2019), Huawei Technology Sweden (2019-2022). He has 200+ filed patent applications, 4 book chapter, and over 30 journal and conference articles under his name. His research interests include 5G and Beyond 5G systems, Vehicle-to-Everything (V2X) communications, AI and Machine learning. He is the Chair of YP Committee of IEEE VTS.

Raghav Thanigaivel is a Senior Engineer at Telus and is responsible for the automation of their 4G and 5G Wireless Core Networks. Previously he was stationed at National Institute of Standards and Technology (NIST) in the USA, to develop software for Wireless R&D activities in the Public Safety Communications Research (PSCR) division. He is also a former employee of IBM India, where he worked on Systems Engineering software development for AT&T USA. He volunteers with various entities such as the IEEE and the York Region Amateur Radio Club. He is currently the Chair and Coordinator for IEEE Canada Young Professionals Committee. He possesses an Advanced Qualification Ham Radio License and is also an Advanced Operations Drone Pilot & Flight Reviewer in Canada.

Moshiur Rahman received his Ph.D. degree from University of Quebec, Montreal, and his Master's degree from the University of Trento, Italy in 2016 and 2011, respectively. He is currently working as a Systems Engineer for Ericsson Canada where his primary focus is on research and product development of 5G and 6G radio access solutions. Additionally, he is an Adjunct Professor at the School of Advanced Technology, Algonquin College, Ottawa. With prior roles as a Systems Software Architect at Ford Motor Company (2019-2022), Senior Engineer at Huawei Technologies (2017-2019), and Cloud Solution Architect at CENGN (2016-2017), he brings expertise in 5G/6G radio access networks, Open Radio Access Network (O-RAN), cloud-native solutions for RAN, network optimization using ML/AI, and connected vehicle technologies.

Xiaoguang (John) Huang Over 20 years North American Automotive engineering experience. Currently He is working in General Motors Canada as Scrum Manager which is responsible for delivering next generation Electric Vehicle SW development work. Prior to GM, he worked in BionX (Magna), Stackpole & Mobile Climate Control as a Senior Electrical Engineer. He received his MASc. Degree in Electrical & Computer Engineering from TMU in 2009. He is a Professional Engineer in the Province of Ontario.

Young Professional Presentations

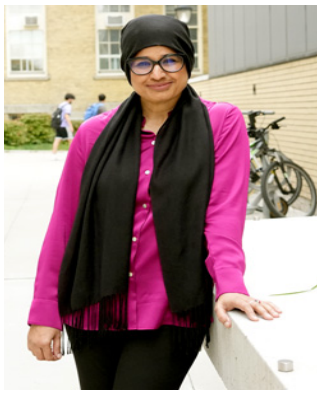


Presenter 1:
Hussein Ammar (Assistant Professor, Royal Military College of Canada)

Presentation Title:
Scalable Mobility-Aware Energy Efficiency Management for Cell-Free Networks

Presenter 2:
Ajmery Sultana (Assistant Professor, Algoma University)

Presentation Title:
Towards Secure and Efficient Communication: Leveraging Quantum Internet Technologies

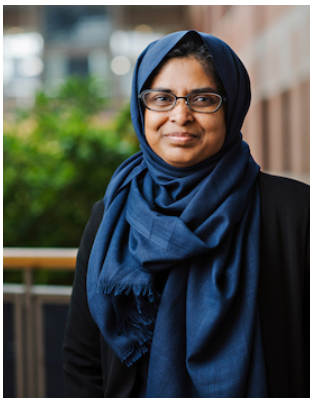


Presenter 3:
Sunila Akbar (Postdoctoral Fellow, University of Toronto)

Presentation Title:
Model-based DRL for Task Scheduling in Dynamic Environments for Cognitive Multifunction Radar

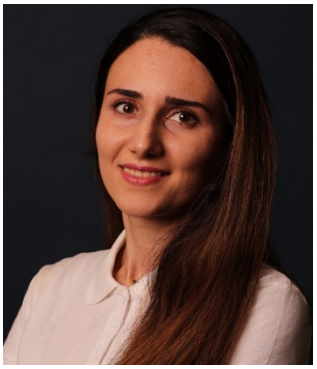
Presenter 4:
Afsoon Shamsabad (PhD Student, Carleton University)

Presentation Title:
Enhanced Next-Generation Urban Connectivity: Is Integrated HAPS-Terrestrial Network a Solution?



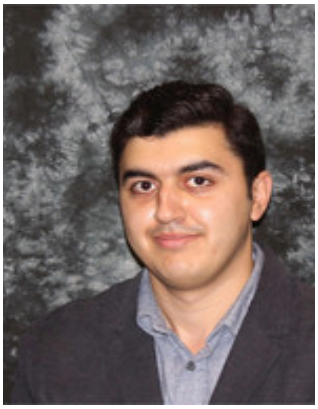
Presenter 5:
Lilatul Ferdouse (Assistant Professor, Wilfrid Laurier University)

Presentation Title:
Intelligent Meta-Surfaces: Revolutionizing 6G and Beyond



Presenter 6:
Javane Rostampoor (Postdoctoral Fellow, University of Toronto)

Presentation Title:
Robust Fronthaul in Wireless Networks: A Caching and Traffic Prediction Approach



Presenter 7:
Mustafa Ammous (PhD Student, University of Toronto)

Presentation Title:
RIS-Enabled Cooperative Sidelink Positioning Under Partial Blockage

Project/Poster Presentations

Project 1: ***PlantInfo: A Foray into a Full-stack IoT Device Build***

Mitchell Plunkett

Algoma University

Project 2: ***Active Seat Cushion Morphing using Smart Material Actuation and Textile Pressure Sensing***

Xianzhi Zhong, William Jiang, Moosa Rafiq, Paul Pham

Toronto Metropolitan University

Project 3: ***Smart GUI-based Controller for Model Trains***

Kevin Dong, Neil Entote, Ryan Pacheco, Shearoy Anklesaria

Toronto Metropolitan University

Project 4: ***Design, Modeling, and Control of New Thrust Vectoring Quadrotor***

Jann Cristobal

Toronto Metropolitan University

Project 5: ***Novel Segmented Learning for Virtual Reality Network Traffic Identification***

Yoga Suhas Kuruba Manjunath, Austin Wissborn, Mathew Szymanowski, Tim Rozer, Niusha Sabri Kadijani

Toronto Metropolitan University

Project 6: ***Reconfiguration-Cost-Efficient Virtual Network Embedding in Satellite Networks***

Zhixuan Tang, Conghao Zhou, Shisheng Hu

University of Waterloo

Project 7: ***Context-Aware Predictive Coding: A Representation Learning Framework for WiFi Sensing***

Borna Barahimi

York University

Project 8: ***Generalized Multi-Objective Reinforcement Learning with Envelope Updates in URLLC-enabled Vehicular Networks***

Zijiang Yan

York University

Project 9: ***Smart Hub: A Smart Home Automation System***

Kalpkumar Patel, Joshua Genat, Michael Sandrin, Zenith Patel, Sayed Mohammed, Hashaam Bajwa, Justine Philip

York University