DAVID KHALATYAN

78 Cliff Crescent, Kingston, ON K7M 1A8 (905) 392–8896 David.Khalatyan@queensu.ca

PROFILE

I am a swift learner and a meticulous worker with an aptitude for creative problem solving. I excel in dynamic environments where challenges are complex and solutions are found hands-on. My contribution to teams as a member and a leader, complimented by my individual endeavours, foster the flexibility to succeed in any setting.

As a M.ASc candidate with the Offroad Robotics group at Queen's University, my research centers on developing the next generation of robotic off-highway equipment. To conduct this research, I am leveraging my theoretical understanding of robotic systems along with my practical mechatronic design and fabrication experience.

PROFESSIONAL EXPERIENCE

Teaching Assistant, Mechatronics Engineering **Sep. 2019 – Dec. 2019 & Sep. 2020 – Apr. 2021**
Queen's University - Kingston, Ontario

- Proficiently provided support and evaluation of laboratory activities, both in-person and virtually, to over 20 students tasked with modifying hardware and software elements of an Arduino based mobile robot
- Closely involved in the development of course content incl. sensor hardware and C++ software, along with lab instructions and project guidelines

Teaching Assistant, Computer Integrated Manufacturing **Sep. 2020 – Dec. 2020**
Queen's University - Kingston, Ontario

- Independently created, presented, and evaluated virtual lab activities that explored Intelitek's RoboCell software for robotic manipulator control and Factory I/O's software for PLC training to over 50 students
- Competently assisted with the grading of course assignments, projects, and midterms in topics related to forward and inverse robot kinematics, as well as machine vision

Research Assistant, Offroad Robotics **May 2018 – Aug. 2018 & May 2019 – Aug. 2019**
Queen's University - Kingston, Ontario

- Effectively upgraded the performance of a mobile robotic platform, Husky A200, incl. tripling power capacity and a dust-proof computer compartment, for deployment in an underground mine
- Successfully converted an existing commercial personnel carrier, the Taylor-Dunn SS-534, to drive-by-wire and developed accompanying ROS software for remote operation
- Usefully supported in the design and subsequent revisions of a novel mobile robotic platform, Ibex, which realized weight reductions over 10 kg and significantly improved structural rigidity
- Professionally presented Ibex to the NSERC Canadian Robotics Network community in an effort to secure funding for commercialization and transfer of knowledge to industrial, government, and research partners

Team Leader & Safety Officer, Queen's University Supermileage Team **Sep. 2015 – Apr. 2019**
Queen's University - Kingston, Ontario

- Proficiently led a team of 15 individuals to develop a high-efficiency prototype vehicle achieving efficiencies over 500 kilometers per litre of gasoline at the annual Shell-Eco Marathon Americas event
- Meticulously designed all elements of the vehicle using Solidworks CAD software incl. structural wheel mounts and steering members, and developed technical drawings for their manufacture
- Skillfully machined several components crucial to vehicle operation using various machine tools incl. CNC and manual mills and lathes, as well as with carbon fibre composites and 3D printing technology
- Closely supervised fabrication with emphasis on proper volatile material handling to maintain member safety and ensured the vehicle maintain all safety requirements

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PROFESSIONAL EXPERIENCE cont'd

Research Assistant, Reactor Materials Testing Laboratory **May 2017 – Oct. 2017**
Queen's University - Kingston, Ontario

- Independently created a thermal management system for laboratory test samples undergoing long-term ultra-high vacuum and nuclear irradiation conditions for material strength degradation studies
- Precisely designed the system using Solidworks CAD software and conducted extensive computational fluid dynamics analysis to optimize heat transfer characteristics
- Effectively developed technical drawings and CNC machined several components to produce a fully functional prototype that validated theory and exceeded design requirements
- Methodically established a best-practice technique and composed an associated operations manual which drastically improved repeatability and reliability of the prototype system

EDUCATION

Master of Applied Science, Mechanical and Materials Engineering **Sep. 2019 – Dec. 2021 (Expected)**
Queen's University - Kingston, Ontario

- Recipient of over $36,500 in cumulative awards incl. NSERC Alexander Graham Bell Canada Graduate Scholar (CGS-M) (2019) and Queen's Graduate Award (2019 & 2020)
- Resourcefully developed a novel modular robotic system that challenges conventional off-highway equipment design and enables future research in autonomous systems incl. control and path-planning

Bachelor of Applied Science, Mechanical and Materials Engineering **Sep. 2015 – Apr. 2019**
Queen's University - Kingston, Ontario

- Recipient of over $17,000 in cumulative awards incl. Chubb Foundation Scholarship (2018) and Carolyn F. Small Memorial Award for Design Innovation (2018)
- Awarded the J.L. Mason Cup Award for excellent communication, high-level project management, and advanced technical analysis throughout the Engineering Practice Course (2016)

VOLUNTEER EXPERIENCE

Mentor for FIRST Robotics Team **Jan. 2020 – Feb. 2020**
Lake Effect Robotics (Team 2708) – Kingston, Ontario

- Closely mentored local high school students in manufacturing techniques and personal safety, specifically relating to the operation of a manual mill and lathe, and encouraged the pursuit of STEM based education

Maker Faire - The European Edition **Oct. 2019**
Maker Faire Rome - Rome, Italy

- Internationally represented Queen's University and Ingenuity Labs to the over 100,000 event attendees by showcasing walking and wheeled mobile robotic platforms that attendees could control and interact with

Engineering Faculty Orientation Leader **Sep. 2016**
Engineering Society, Queen's University - Kingston, Ontario

- Enthusiastically guided first year students through faculty specific orientation activities, acting to both ease the transition to post-secondary education and to promote their success throughout the following years