

DMYTRO HUMENIUK

4850, Ch. de la Côte-des-Neiges, Montréal (Québec) H3V 1G5, 514-238-9320

e-mail: dmytro.humeniuk@polymtl.ca, [google scholar](#)

EDUCATION

Sept 2021 – present Montréal, Canada	PhD in Computer Engineering Polytechnique Montreal, GPA: 3.79/4 Research Direction: Optimization techniques for simulation-based testing of autonomous robotic systems
Sept 2019 - August 2021 Montréal, Canada	Master of Applied Science (M.A.Sc.) in Computer Engineering Polytechnique Montreal, GPA: 3.59/4 Thesis: " A research-based framework for automatically generating test environments for cyber-physical systems ", Publication in Information and Software Technology Journal .
Sept 2015 - June 2019 Kyiv, Ukraine	Bachelor of Computer Engineering National Technical University of Ukraine, Kyiv Igor-Sikorsky Polytechnic Institute (Kyiv, Ukraine), GPA: 91/100, Final Project Title: " Automated system for determining solar cell model parameters " », Article " Automated System for Determining Parameters of a Solar Cell Model "

RELEVANT EXPERIENCE

May 2023 - present Montréal, Canada	Mitacs Accelerate internship in intelligent robotics at Sycodal Development and simulation-based testing of autonomous vision-based robot manipulators in the state-of-the-art Isaac Sim simulator . Synthetic dataset collection with Isaac Replicator, object detection model training with TAO 5.
Jan 2023 - June 2023 Montréal, Canada	Machine learning software developer intern at Ericsson Implementation of distributed and decentralized gradient descent on a cluster of compute nodes with Pytorch distributed and BlueFog frameworks.
Sept 2022 - Dec 2022 Montréal, Canada	Teaching assistant for the LOG3430 (Software Testing Methods) Work on practical works for students on software testing with pytest, mutation testing, fuzzing, load testing and metamorphic testing
Feb 2021 - June 2021 Montréal, Canada	Mitacs Accelerate Internship with COGECO Work on preventive maintenance of cable modem networks. Trained a neural network model with PyTorch to predict equipment failure 7 days in advance. Analyzing and Visualizing Cable Modem Data in Python. Director: Robin Lavoie.
Sept 2020 - Dec 2020 Montréal, Canada	Teaching assistant for the LOG3430 (Software Testing Methods) Preparation of the practical work of the course (5 works), answers to the questions of the students, evaluation of the work delivered. Development of a Naive Bayes anti-spam filtering system.
March 2018 - August 2019 Kyiv, Ukraine	Research assistant at Institute of Physics and Technology Development of an automated system for acquiring the voltage-current characteristics of semiconductor devices. (Director: Prof. Gennady Monastyrsky). Our work has resulted in two publications. Most Recent Accepted at IEEE 2022 International Conference " Indirect Estimation of Thermal Regime of Operation of Power LEDs "
June 2018 - August 2019 Québec, Canada	Mitacs Globalink research internship Design and manufacture of the on-board energy harvesting system based on microbial fuel cells, system interface design under Matlab. Laval University, Department of Electrical Engineering and Computer Engineering (Prof. Amine Miled). Our work has given rise to the publication " Bacteria Energy Recovery System Using Natural Soil Bacteria in Microbial Fuel Cells ".

ACADEMIC ACTIVITIES

July 2023	BMW Summer School 2023 on autonomous driving Poster presentation on simulation-based testing of autonomous systems
October 2022 Montréal, Canada	Hackathon CodeML 1st place for the text language classification task (https://bit.ly/3MrhFNT)
August 2022 Montréal, Canada	Montreal Robotics Summer School 2022 Development of an RL-based controller for a quadruped robot (https://bit.ly/3emxiJU)

March 2021 - April 2021
Montréal, Canada

6th IVADO/Mila deep learning school
[Certificate of participation](#)

SCHOLARSHIPS AND PRIZES

June 2022 **2022 Human-Competitive Awards Finalist**
Nomination for our research-based testing tool, presented at the GECCO 2022 conference, <https://www.human-competitive.org/awards>

May 2022 **2022 SBST Cyber-Physical Systems (CPS) Testing Competition Winner**
Our tool AbmieGen won the contest: <https://sbst22.github.io/program/>

November 2020 **Public Favorite 2020 award at the first edition of IVADO Digital October**

September 2019 **Bourse Mitacs Globalink (15 000 CAD)**

Mars 2018 **2018 Mitacs Globalink Research Internship Award (CAD 5,000)**

September 2015 **President of Ukraine Scholarship (CAD 1000)**
Obtained for the first place in the national competition of Ukraine of engineering and scientific projects, in the category "Design of embedded systems"

SELECTED PUBLICATIONS

1. Humeniuk, Dmytro, Foutse Khomh, and Giuliano Antoniol. "Reinforcement learning informed evolutionary search for autonomous systems testing." arXiv preprint arXiv:2308.12762 (2023).
2. Humeniuk, Dmytro, Foutse Khomh, and Giuliano Antoniol, "AmbieGen: A search-based framework for autonomous systems testing", Science of Computer Programming, Volume 230, 2023, 102990, ISSN 0167-6423, <https://doi.org/10.1016/j.scico.2023.102990>.
3. Humeniuk, Dmytro, Giuliano Antoniol, and Foutse Khomh. "AmbieGen tool at the SBST 2022 Tool Competition. In Proceedings of the 15th Workshop on Search-Based Software Testing, pp. 43-46. 2022, <https://doi.org/10.1145/3526072.3527531>
4. Humeniuk, Dmytro, Foutse Khomh, and Giuliano Antoniol. "A search-based framework for automatic generation of testing environments for cyber-physical systems." Information and Software Technology 149 (2022), <https://doi.org/10.1016/j.infsof.2022.106936>.

VOLUNTEER ACTIVITIES

Feb 2022 – Dec 2022 Volunteer for the Ukrainian community. [Fund raising for VAC devices](#),
[Member of the team organizing AI helps Ukraine conference](#)

July 2020 - Sept 2021 Volunteer at the ABC Center in Montreal
Work at the food bank for the organization ["Entraide des familles"](#), 60+ of work (as of June 1, 2021)

SKILLS

Languages: Python, Shell, SQL, C/C++, Matlab
Libraries/Frameworks: TensorFlow/Pytorch, TAO 5, Scikit-Learn, OpenAI Gym, Flask, ROS, Isaac Sim
Technologies: Git, Docker, cloud AWS

LANGUAGES

- Fluent English)
- Fluent French)
- Ukrainian (mother tongue)