

## DMYTRO HUMENIUK

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

e-mail: [dmytro.humeniuk@polymtl.ca](mailto:dmytro.humeniuk@polymtl.ca), website: <https://dgumenyuk.github.io/>

### EDUCATION

- Sept 2021 – present **PhD in Computer Engineering**  
Montréal, Canada Polytechnique Montreal, GPA: 3.79/4  
Research Direction: Optimization techniques for simulation-based testing of autonomous robotic systems
- Sept 2019 - August 2021 **Master of Applied Science (M.A.Sc.) in Computer Engineering**  
Montréal, Canada 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 **Bachelor of Computer Engineering**  
Kyiv, Ukraine 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

- Jan 2024 – present **Teaching assistant for the LOG6305 (Advanced Software Testing Methods)**  
Montréal, Canada Work on practical works for students on advanced software testing with Python: fuzzing, search-based testing, test generation with LLMs.
- May 2023 - present **Mitacs Accelerate internship in intelligent robotics at [Sycodal](#)**  
Montréal, Canada 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 **Machine learning software developer intern at [Ericsson](#)**  
Montréal, Canada Implementation of distributed and decentralized gradient descent on a cluster of compute nodes with Pytorch distributed and BlueFog frameworks.
- Sept 2022 - Dec 2022 **Teaching assistant for the [LOG3430 \(Software Testing Methods\)](#)**  
Montréal, Canada Work on practical works for students on software testing with pytest, mutation testing, fuzzing, load testing and metamorphic testing
- Feb 2021 - June 2021 **Mitacs Accelerate Internship with [COGECO](#)**  
Montréal, Canada 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 **Teaching assistant for the [LOG3430 \(Software Testing Methods\)](#)**  
Montréal, Canada 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 **Research assistant at [Institute of Physics and Technology](#)**  
Kyiv, Ukraine 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 **Mitacs Globalink research internship**  
Québec, Canada 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 **Hackathon CodeML**  
Montréal, Canada 1st place for the text language classification task (<https://bit.ly/3MrhFNT>)

August 2022 **Montreal Robotics Summer School 2022**  
Montréal, Canada Development of an RL-based controller for a quadruped robot (<https://bit.ly/3emxiJU> )  
March 2021 - April 2021 **6<sup>th</sup> IVADO/Mila deep learning school**  
Montréal, Canada [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

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