Nazar Misyats

nmisyats@ece.ubc.ca | Website | GitHub

Education

MASc. Electrical and Computer Engineering Sept 2025 –
The University of British Columbia, Vancouver, Canada

BSc. & MSc. (1st year) Computer Science Aug 2022 – Aug 2025
École normale supérieure de Rennes, Bruz, France

Classes préparatoires aux Grandes Écoles (MPSI – MP*) Sept 2020 – Jun 2022
Lycée Carnot, Dijon, France

Experience

CERN Summer Student, *CERN*, Geneva, Switzerland Jun – Sept 2025
Tested feasibility of floating-point integration for particle transport simulation and proposed new geometry approximations, to accelerate ATLAS EMEC simulations.

Research Intern, *National Institute of Informatics*, Tokyo, Japan Feb – Jun 2025
Reconstruction of precipitating electron spectrum in auroras using neural implicit representations.

Research Student, *Norwegian University of Science and Technology*, Trondheim, Norway Sept – Dec 2025
Implementation of a safe drone controller based on control barrier functions in PX4.

Research Student, *University of British Columbia*, Vancouver, Canada May – Aug 2024
Development of a PyTorch extension to simulate custom floating point formats in deep learning kernels.

Research Intern, *Inria/IRISA*, Rennes, France Sept 2023 – May 2024
Design space exploration of approximate arithmetic operators for low-power embedded deep learning.

Research Intern, *Inria*, Valbonne, France May – Jul 2023
Extension and improvement of a morphing operator for SVBRDFs and implementation of a prototype physically-based renderer.

Publications

Embedded Safe Reactive Navigation for Multirotors Systems using Control Barrier Functions May 2025
Nazar Misyats, Marvin Harms, Morten Nissov, Martin Jacquet, Kostas Alexis
2025 International Conference on Unmanned Aircraft Systems (ICUAS)

Range Extension with Supernormals for Mixed-Precision 8-bit DNN Training May 2025
Shing Wai Pun, Bozhang Bao, Silviu-Ioan Filip, Guy Lemieux, John V. Kim, ***Nazar Misyats***, Nirvik Pande, Victor Ravain, Robert Scherrick
2025 IEEE 32nd Symposium on Computer Arithmetic (ARITH)

Notable projects

Optimization tool for interplanetary trajectories with multiple gravity assists Website, GitHub
A tool for automatic design of optimal trajectories with multiple gravity assists trajectories and deep space maneuvers. Now used by hundreds of players of the video game Kerbal Space Program.

Procedural shaders Shadertoy
Implementation of several rendering techniques using GLSL shaders, such as raymarching, pathtracing, and physically based rendering.

GPU-accelerated terrain generation GitHub
Implementation of a fast marching cubes algorithm for terrain generation using OpenGL compute shaders.

Robot neuroevolution GitHub
Training a neural network to drive a robot in a simulation with a genetic algorithm. The trained models were successfully tested on a real robot.

Extracurricular activities

UBC Rover 2025 –
Embedded software and firmware development for a competition rover.

UBC Orbit 2025 –
Attitude, orbit and control system R&D for the ALEASAT CubeSat project of UBC's satellite design team.

Astronomy popularizing 2019 –
Member of the *Société Astronomique de Bourgogne*, the largest french amateur astronomer association.

Competitive programming 2020 – 2023
Top 10 finalist of the french national coding competition *Prologin*.

ESA Astro Pi competition 2020
Ran a custom data-collection experiment on the International Space Station to study cloud distribution.

Skills

Programming: C, C++, Python, CUDA, GLSL, JavaScript/TypeScript, C#, OCaml, PHP, SQL, HTML/CSS

Frameworks: PyTorch, Unity, ROS, Node.js, .NET, OpenGL/WebGL, LaTeX, Tensorflow/Keras

Languages: French (native), English (fluent), Ukrainian (basics)