

VADIM MYCHKO

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Computer science undergraduate with a solid foundation in mathematics, machine learning, and software development. Seeking internships and job opportunities to solve real-world problems and gain experience.

Education

Czech Technical University

Sep 2021 – Jun 2024

Bachelor in Artificial Intelligence and Computer Science

GPA: 1.1

Projects

Automatic Differentiation Library | Julia, Jupyter Notebook, CI, GitHub Actions

Feb 2024

- Developed a Julia library for automatic differentiation through backward pass.
- Implemented functionality for plotting an arbitrary (directed acyclic) computational graph.
- Defined and trained a neural network using solely the developed library for classifying non-linear data.

Visual Tracking Onboard UAVs | Python, C++, ROS, OpenCV, Jupyter Notebook

Oct 2023 – Present

- Integrated single-object visual trackers from the OpenCV library into the MRS UAV system.
- Researched sparse features and template visual tracking for drone-hunting scenarios.
- Performed a qualitative analysis of the integrated trackers in the Gazebo simulation.

Arimaa Java Client | Java, JavaFX, JUnit, Maven

Apr 2023

- Developed a Java client for the chess-like game Arimaa with a graphical user interface.
- Utilized the JUnit framework for creating a suite of unit tests to test the functionality.
- Implemented logic for undoing moves, loading, and saving game states to a text file.

Semantic Segmentation of GTA 5 | Python, PyTorch, NumPy, Matplotlib, Jupyter Notebook

Dec 2023

- Trained a neural network on a fraction of the annotated GTA 5 dataset using PyTorch.
- Used the trained neural network to semantically segment the chosen sequence of the real-world dataset Cityscapes.
- Performed a qualitative analysis, which showed close correlation between the two datasets.
- The analysis also showed that the model trained on the artificial data may be employed for real-world data.

Smart Reversi Player | Python

Nov 2021

- Developed a program for playing the strategy board game Reversi.
- The program utilized alpha-beta pruning and a hand-crafted heuristic evaluation function.
- The program took the 1st place on the ranking table among other 140 students.

Coursework

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|-----------------------|----------------------|--------------------------|-----------------------|
| • C/C++ Programming | • Database Systems | • Julia Language | • Pattern Recognition |
| • Programming in Java | • Parallel Computing | • Functional Programming | • Machine Learning |

Skills

Languages: Python, C/C++, Java, Julia, SQL, Bash, Racket, Haskell, \LaTeX

Frameworks/Libraries: PyTorch, NumPy, Pytest, Matplotlib, OpenCV, ROS, JavaFX, JUnit

Tools: Git, Unix Shell, Jupyter Notebook, VS Code, CI, GitHub Actions, Maven

Natural Languages: Czech (B2), English (B2), Russian (native)

Achievements

SCIO Mathematics

Mar 2021

Achieved the 100th percentile on the SCIO Mathematics test (SAT analogue).

OI Scholarship for Talented Students

Mar 2022

Awarded a scholarship for achieving excellent results on a mathematics test.

Upsilon Pi Epsilon | Member

Feb 2024 – Present

Recognized by the university for achieving excellent academic results.