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 **September 2021 – June 2024**
Bachelor in Artificial Intelligence and Computer Science *GPA: 1.1*

Projects

Automatic Differentiation Library | *Julia, Jupyter Notebook, CI, GitHub Actions* **February 2024**

- Developed a Julia library for automatic differentation 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* **October 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* **April 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* **December 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* **November 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

- C/C++ Programming
- Programming in Java
- Database Systems
- Parallel Computing
- Julia Language
- Functional Programming
- Pattern Recognition
- 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 **March 2021**
Achieved the 100th percentile on the SCIO Mathematics test (SAT analogue).

OI Scholarship for Talented Students **March 2022**
Awarded a scholarship for achieving excellent results on a mathematics test.

Upsilon Pi Epsilon | *Member* **February 2024 – Present**
Recognized by the university for achieving excellent academic results.