Dawid Borys

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Based in Wrocław, Poland. Enthusiast of astronomy, music, anthropology, and almost every other branch of science. Guided by unceasingly excited brain. Actively searching for ways to contribute to the world: currently by climate activism, and popularising science. Looking for a job to connect my multitude of passions with my computer science skills that I actively grow while pursuing my degree.

Education

University of Warsaw
Computer Science BSc; 2017 – present
Selected projects:

- <u>Functional language interpreter</u> written in **Haskell** using bnfc parser. Supporting polymorphism, static type check, algebraic types, and non-deterministic data flow (monad transformers, BNF grammar).
- **Python** module generating phylogenetic trees, showing genetic relatedness of a virus behind COVID-19 to selected strands of Coronaviruses family.
- **Prolog** solver for the game of Sokoban.
- <u>Browser space strategy game</u> written in **Typescript** with **Node** (async programming, DB interaction, responsive web design).
- Concurrent file exchange server and client in **C++** (TCP/UDP protocols, filesystem).
- **Java Android app** generating writings from constructed writing systems (aka *conscripts*) drawn with finger by user.

Currently working in a team of 4 on bachelor's thesis on **reinforcement learning** for optimisation of car traffic. Already implemented an <u>open-source environment</u>.

High School no. 5 in Kraków
Extended mathematics, and physics at Jagiellonian University

Projects

Video game music generator
Python, PyTorch, unsupervised learning
Engineered a neural network generating 30 second MIDI snippets based on video game music database. Learned about various designs of neural network models and persistence in trails and errors of machine learning.

Starwars
C++, templates, metaprogramming
Simulated galactic battles artificially implementing compile-time operations. Rather useless in proffesional environment, but sparked my interest in non-imperative paradigms of programming.

$MuB^b{}_o$
Java, cellular automata audiovisual project
In a team of 4 explored capabilities of generating both melodies and visuals through simple rules of particles bouncing on a grid. Learned computer and interpersonal troubleshooting.

Languages
Polish — native
English — advanced
Spanish — low-intermediate
Korean & Toki Pona — beginner

Online courses

École Polytechnique Fédérale de Lausanne
led by Martin Odersky (creator of the Scala language)

- Functional Programming Principles in **Scala**
- Functional Program Design in Scala
- Parallel programming

Stanford University
Machine Learning by Andrew Ng

Extracurriculars & achievements

Almukantarat Astronomy Club association
Tutor since 2016, member since 2017

- Gave over **100 hours** of lectures and workshops on astrophysics, computer science, linguistics.
- Managed a team of tutors.

11th International Olympiad on Astronomy and Astrophysics
November 2017, Thailand — Polish representative

- Qualified by scoring 4th place at national Astronomy Olympiad.
- Tasks on data analysis, astrophysics and observations.

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