Sakevych **Michael**

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Education

Taras Shevchenko National University of Kyiv — *Kyiv, Ukraine*

COMPUTER SCIENCE AND CYBERNETICS DEPARTMENT — *Sep. 2019 - Present*

Bachelor of Science in Applied Mathematics

Johannes Kepler University — *Linz, Austria*

ARTIFICIAL INTELLIGENCE DEPARTMENT — *Mar. 2022 - Present*

Bachelor of AI

Skills

Languages Python, Golang, C, C++, C#, Maple, SQL, HTML/CSS, LaTeX

Tools Conda, PostgreSQL, Traefik, Redis, Swagger, Docker, Docker Compose, EVM, PyCharm, Jupyter Notebook, Matlab, Git, Bash

Libraries Torch, sklearn, Pandas, NumPy, Matplotlib, Horizon, Viper, Sentry, Chi, Logan, TeleBot, NetworkX, TokenD, PyGame

Experience

Software Engineer Intern @ Distributed Lab — *Kyiv, Ukraine*

GO, SWAGGER, POSTGRESQL, REDIS, VIPER, TRAEFIK, SENTRY, HORIZON, ETHEREUM, BLOCKCHAIN — *Dec. 2021 - Feb. 2022*

- Worked on TokenD project for constructing ready-to-use blockchain-oriented services deployable on different blockchains.
- Created a multi-purpose blob storage service written in Go, bootstrapped by OpenAPI, backed by PostgreSQL and Redis
- Set up micro-service deployment containerized by Docker, orchestrated by Docker Compose and monitored by Cop and Sentry.

Projects

Monkey Interpreter

Go, Compiler Design, Programming Languages

- Created a robust lexer, recursive-descend Pratt parser, AST-walking interpreter and REPL for the Monkey programming language.
- Implemented first-class support for the higher-order functions, recursion, tail call optimization, closures, namespaces, etc.
- Extended built-in functions to work with heterogeneous lists and closed-addressing hash tables as well as strings.
- Designed a standard library with wide variety of modules covering: buffered I/O, containers, mathematical functions, logging, etc.

Measuring embedding distortion using KNN graphs

Python, NetworkX, Dimensionality Reduction Algorithms, Visualisation

- Suggested a method for evaluating the distortion in embeddings using distances in K-nn graph.
- Built distortion ”heatmap” interpolating intermediate distortion
- Implemented interactive visualization of distortion factors(paths in graph).
- Wrote custom Python library ”DRD” with functions for calculating and visualising distortion.

Programming Assignment Bot

PYTHON, TELEGRAM API, ALGORITHMS, PLAGIARISM DETECTION

- Created chat bot that serves as a bridge between teachers and students, allowing teachers to set up a programming assignment.
- Students can send their solutions and check them against a teacher-defined test suit(including a check for plagiarism).
- Implemented state-of-the-art plagiarism detection algorithm: “MOSS, A System for Detecting Software Plagiarism. Aiken, Alex. (2002).”
- Stateless implementation allows for horizontal scaling and provides failure tolerance guarantees.
- Added support for solutions targeting many different languages/compilers/toolchains.

Extracurricular Activity

STEP IT Academy — *Seattle, WA*

LECTURER, VOLUNTEER — *Aug. 2020 - Jun. 2021*

- Lectured 2 semester-long Computer Science classes for senior high-school kids focusing on Algorithms and Data Structures in C++.
- Taught graph algorithms, computational complexity, multithreading, x86 assembly, encoding, compression, BMP and AVI formats.

Austrian-Ukrainian Student Support Group — *Linz, Austria*

Organizer — *Mar. 2022 - Sep. 2022*

- Helped dislocated Ukrainian students to continue their studies at the JKU in Linz, curated a list of resources/guides. It became a news website.