Matej Ciglenečki

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Software engineer with over 1 year of experience, highly interested in computer science, software engineering, and machine learning. Throughout my work and academic experience, I've developed excellent problem-solving capabilities accompanied by a strong sense of ownership. I'm fascinated by well-written libraries, software modularity, and design principles.

Experience

Photomath – Software Engineer Intern July 2022 – Oct 2022
- Developed and deployed cloud services that parse, transform, enrich and deliver millions of events used for verifying Photomath's core regression tests (**Python, GCP, Datastream, Pub/Sub, Dataflow, Cloud Run, GitHub Actions**).

Memgraph – Software Engineer Oct 2020 – Oct 2021
- Designed a **PostgreSQL** database schema and wrote feature specifications for Memgraph Cloud platform. After successful implementation, the platform achieved 300% user growth in the first month.
- Implemented Memgraph Cloud's backend (**node.js, TypeScript, Express, Sequelize, PostgreSQL**) that supports 400+ active users, manages **AWS EC2** instances, and supports monthly user billing based on user usage.
- Set up **Elastic Stack** on **AWS EC2** to analyze application logs (**AWS CloudWatch**) in **Kibana** dashboards.
- Wrote unit and integration tests (**Jest**).
- Wrote educational lessons and created graph datasets (**Memgraph, Cypher**).

Memgraph – Software Engineer Intern July 2020 – Oct 2020
- Implemented geographic graph data visualization in Memgraph Lab (**TypeScript, Leaflet**).
- Refactored codebase via design patterns (**TypeScript, Angular**).
- Wrote a summary blog post.

Skills

Main languages:	**Python, TypeScript, C**
Other:	**git, Linux, bash, C++, Java, Docker, Elastic Stack, React**
Backend development:	**node.js, Express, Sequelize, FastAPI, GCP, AWS**
Databases:	**PostgreSQL, SQL, Memgraph**
Machine Learning and Data Science:	**scikit-learn, PyTorch, numpy, pandas, matplotlib, R, PyTorch Lightning**

Education

M.Sc Data Science – Faculty of Electrical Engineering and Computing, Zagreb, Croatia Oct 2021 – July 2023 (expected)
relevant courses: Advanced Algorithms and Data Structures, Machine Learning, Deep Learning, Statistical Data Analysis, Multivariate Data Analysis, Technology Entrepreneurship, Mathematical Finance, Business Intelligence

B.Sc Computer Science – Faculty of Electrical Engineering and Computing, Zagreb, Croatia Oct 2017 – July 2021
relevant courses: Algorithms and Data Structures, Object Oriented Programming, Design Patterns, Databases, Probability and Statistics, Artificial intelligence, Communication Networks, Network Programming, R language

Workshops and projects

LUMEN Data science competition – GeoGuesser AI Agent 2022
- Led a finalist team of three. The goal was to predict the location of 64 000 Google Street View images in Croatia.
- Achieved 2nd place in model performance with a mean error of 22km, measured as the great-circle distance from the true to the predicted location.
- Used **Python**, **PyTorch**, deep learning, geospatial feature engineering and computer vision methods to transform geographic data, process images, train multiple models and predict locations of unseen Google Street View images.
- Implemented a **FastAPI** server that allows inference on a trained model.
- Wrote project documentation and technical documentation.

Implementation of driver fatigue detection in an EEG-based system – Data Science course project 2022
- Successfully reproduced results and methods described in the research article with **Python**.
- Performed data analysis and feature extraction on driver's EEG data. Processed 7200 seconds worth of EEG data.
- Trained 4 different models, successfully predicted driver's fatigue with **scikit-learn** with +99% accuracy, and achieved 1% better results compared to the research article.

AI BattleGround hackaton – AI Agent 2022
- Worked in a team of four. Implemented a software agent in **Python** which plays against other agents in a turn-based game. Agents communicate via a streaming protocol, and based on the game's state the agent tries to perform the optimal move (*attack*, *switch characters,* or *use an item*). The game consists of multiple different characters, actions, and modifiers.

Student success analysis – Statistical Data Analysis course project 2022
- Led a team of 4 in the Statistical Data Analysis course project written in **R**.
- Analyzed student success data with the following statistical methods: t-tests, chi-squared test, Fischer's test, normality tests, f-tests, ANOVA, and linear regression.
- Wrote a final report which describes the theory and the context of used statistical methods used in the project.

Soft skills academy – leadership group 2020

DataCrunch – data science academy 2019, 2018
- Predicted next year's bankruptcy of Croatian companies with machine learning techniques written in **R**.