MARKO RENIC

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SKILLS

TECHNOLOGIES: C, C++, Python (Tensorflow, Keras, Scikit-learn, Pandas, Numpy), JS (VueJS), eBPF, Solidity, Git, Linux, Hardware
OTHER SKILLS: Adaptable: I have lived and studied in 5 countries and had to adapt to a new language and environment each time.

WORK EXPERIENCE

Innovation Engineer, AI team (C,Go,eBPF,Makefile, Python,JS)

Sartura · Zagreb, Croatia — May 2021 to Aug. 2021

- Lead a project for tracing and analyzing system calls of Linux processes from inside the **Linux Kernel** using **eBPF**.
- Designed and implemented an **anomaly detection algorithm** using **Scikit** for detecting suspicious activity such as unusual file access of Linux processes using unsupervised learning.
- Improved the filtering algorithm of BPF events by adding smart filtering using AI and adding filtering on the device (**embedded C**), decreasing the data sent by up to 70%.
- Developed an improved **Makefile** script for compiling BPF programs more efficiently decreasing the memory required by 44%.
- Utilized **pSQL** and **Go** to replace the existing MongoDB database with a new database optimized for data analysis, eliminating the bottleneck in the pipeline.
- Coordinated with the cloud team on the integration of the pipeline linking the kernel space BPF programs with the cloud and frontend, using **JSON**, **sockets** and **RPC calls** enabling real-time monitoring of Kernel events using a web-interface (**VueJS**).

Summer Intern (Hardware, HTML, CSS, PHP, mySQL)

Cemex Croatia · Split, Croatia — June 2018 to July 2018

- Supported the in-house IT team in an industrial facility by monitoring the systems and completing hardware troubleshooting.
- **Took initiative and developed software** for inventory management which used barcodes, eliminating the need for manual logging.

Volunteer Group-leader (Hardware)

Seeway Tanzania · Arusha, Tanzania — June 2019 to July 2019

- Developed **leadership and organisation skills** by leading a team of students in community work.
- Installed solar panels and lighting in 8 homes and 2 school, to give local students the opportunity to study after sunset sustainably.

PROJECTS

Decentralized Intelligent Voting App - DiVA (Hack the North 2021 Winner) (Solidity, Python, Web3.py) — Sept. 2021

- Collaborated with 3 other developers to revolutionize polling by utilizing the **blockchain** and **machine learning**
- Developed the ballot as a **smart contract** in **Solidity** which runs on the Ethereum network
- Increased security by adding a face and photo ID matching verification using Microsoft Azure's Face API with 78% accuracy
- Developed a Flask web-app in Python which connects to the Ethereum network using **Web3.py** which allows for transparent casting and counting votes in real time

Autonomous Car with GPS-like navigation (C#, Python, OpenCV, Tensor flow, Arduino, Raspberry Pi) — Nov. 2020

- Collaborated with 2 students on developing and demonstrating a small-scale model of how an **autonomous car** can be navigated by satellite using **computer vision and pathfinding** to optimize the path taken by vehicles.
- Utilized OpenCV for **real-time detection** algorithm of the car and its environment which then localizes the car and an **A* algorithm** is ran to find the shortest path to the destination which is converted into a C# using a translation script and sent to the vehicle.

Educational web-app about the Stock Market (Python, AWS, TensorFlow, Keras) — Jan. 2021

- An **interactive web-app** which allows intuitive visualizations of real-time stock indicators (SMA and MACD) on historic stock data
- Developed a Python Streamlit front-end which enables the user to **customize the neural-network** which utilize Keras LSTMs and Dense layers to predict future stock prices with instant feedback on accuracy for the user

EDUCATION

University of Waterloo — Sept. 2020 to June 2025
B.S. Software Engineering
CGPA: 3.87 | Presidential Scholarship