Uroš Vojičić

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Skills

- C++ | C | Python | Matlab/Octave
- Object-Oriented Programming(OOP) | Algorithms and Data Structures
- Linux system administration
- Probability and Statistics | Signals and Systems
- Digital image processing | Digital audio processing | Digital Electronics

Experience

Rivian & Volkswagen Group Technologies -
Software Engineer Intern

• Created a complete automation testing tool from scratch as part of an individual internship project, used to validate vehicle state prior to OTA firmware updates.
• Built a robust pre-check script using **object-oriented Python**, incorporating **Threading** for concurrent operations and integrating **Linux system administration** tasks for dynamic environment handling.
Worked directly with **TCP/IP, UDS**, and **SSH protocols** to interface with embedded systems and perform system-level validations on in-vehicle ECUs.
• Managed the preparation and **configuration** of **Linux-based environments** on test vehicles, ensuring compatibility and stability prior to firmware updates.
• Successfully integrated the script into **GitLab CI/CD pipelines** as a required preliminary stage, enabling safer and more automated firmware rollouts.
• The solution was adopted into the production firmware testing workflow, contributing to improved reliability and **automation of the OTA update process**.

Education

School of Electrical Engineering - Final-year student **University of Belgrade**

- Bsc of Electrical and Computer Engineering
- Department of Signals and Systems

Projects

- **Real-time Eye Gaze Tracking with Python:**

Developed a **real-time eye gaze tracking** application using **OpenCV**, **MediaPipe**, **Pygame**, and **threaded Python**.
It uses OpenCV and MediaPipe for face detection, image processing techniques for eye landmarks detection, and algorithms/ ml models for estimating gaze direction based on eye movement. Calibration is performed for improving the accuracy of gaze estimation during runtime, where users provide gaze data to calibrate the system. The estimated gaze direction is then visualized on the webcam stream or a separate display window.

- **Public Transport Network - Optimal routes:** Object-oriented programming principles in C++ for implementing city transport network from txt file as a graph; Objective is to identify optimal routes for traveling between stations. These routes are determined by considering both the times of arrival of buses and the frequency of buses at certain stations. The implementation involves three key algorithms: Breadth-First Search (BFS), Depth-First Search (DFS), and Dijkstra's algorithm.

- **Liquid Sorting Puzzle Game:** Developed a Liquid Sort Puzzle game using Object-oriented programming techniques in C++.
The starting state is generated using a Lagged Fibonacci generator. A decision tree is created to map out possible player moves, which the program processes and iterates through. Additionally, the program offers a hint feature for the player's next move.

- **Simpsons Character Classifier using CNN:** This project aims to classify characters from "The Simpsons" using deep learning. It involves importing and analyzing a dataset of character images, setting up directories for training and validation data, and utilizing Convolutional Neural Networks (CNNs) for classification.

- **Digital Image Processing projects:** Fundamentals of Digital Image Processing in Python and Matlab, including digital image and video signal formation, 2D signal discretization, image transformations, spatial and transformational domain image quality enhancement, color image quality enhancement, image degradation and restoration, image compression, standards for image compression, video signal processing, edge detection, and image segmentation.

- **Audio Signal Processing projects:** Developing projects in the field of speech processing encompassing elements of acoustic phonetics, speech and auditory system physiology, speech generation theory, speech perception, masked speech perception, speech perception models, speech intelligibility and quality, digital speech signal processing, speech synthesis and recognition, speaker recognition, speech communication quality, quality improvement methods, and speech technologies.

Engagements

- **Student Movement – Serbia (2024 -)**

The movement was nominated for the **2025 Nobel Peace Prize**, highlighting the collective impact of youth-led democratic efforts.
Active participant in a peaceful, nationwide civic movement advocating for justice and accountability following the Novi Sad railway station tragedy in November 2024.

- **Student Mentorship Programme:** As an older student I've had the opportunity to guide and support a group of students from my highschool in their journey towards enrolling in our faculty. I have assisted them in gathering necessary information and materials, as well as providing guidance and support to help them navigate through the freshmen year.

Interests

- Brazilian Jiu-Jitsu; Fishing; Gaming; Coding;