

Richard Barabasi

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Please visit my portfolio site where I display my skills in a more organized manner |
Because of the limitations of this technology, many things are not present in this pdf |
<https://kolompos.github.io> |



Work experience

BOSCH Hungary Ltd. (2022.09 – 2022.12.)

- Learned using a lightweight electromagnetics simulator FEMM.
- Had a taste of big company life and felt too slow for me.

European Knowledge Centre Ltd. (2021.05 – 2022.09.)

- AGV development and manufacturing project
 - 3D design realization from the concept work of an industrial form designer.
 - Manufacturing of the parts, mainly 3D printed with some laser-cut sheet metal.
 - Complete PCB design and manufacturing process.
 - Programming of mainly lower level code, but worked on OS level codes as well.
 - Managing the overall project and work in between colleagues.
- Work on UV-C cleaner robot
 - Developing the charger pistol for the robot.
 - Optimizing 3D printing parameters for better quality and higher production rate.
 - Designing a major replacement component for the robot, a ballast driver circuit

Sagax Communications (2018.05. – 2021.05.)

- Major role in delivering specialized workstations
 - Developing hardware for controlling RF multiplexer circuit.
 - Developing desktop application for managing this hardware.
 - Documenting the project for future maintenance.
 - Hand soldering most of the custom hardware.
 - Developing methods for automatic testing for debug purposes.
 - Deploying system, work on field to assure successful delivery.
 - Keeping contact with customer and maintaining system's hardware components.
- Work on a R&D project developing direction finding antennas for drones
 - Creating 3D design and assembly of the antennas.
 - System testing in lab environment.
 - System testing on field, setting up the system on site, flying drones and collecting measurement data.
- Finishing the development of a tuner module
 - Designing and programming the digital circuits for the tuner.
 - Prototyping, debugging and testing the product.
- Work on the development of a GPS-spoofing detecting equipment
 - Adding digital management circuit to the RF components.
 - Developing manager and data collecting application for the equipment
 - Processing raw data and visualizing them.

Morgan Advanced Materials (2017.06. – 2017.09.)

- Making technical drawings from customer requests for manufacturing.

Education

Mechatronics Engineer BSc (2020)

Budapest University of Technology and Economics. Started as a mechanics engineer, changed in 3rd semester to mechatronics. Finished in 7 semesters with an overall classification of good. Held a few tutoring classes for other students in the first 2 semesters. Went to welding classes as an after school exercise.

Mentionable projects

Thesis Project

My thesis project evolved from a semester subject, where we had to develop a small part of an AGV for a simulated fully automated factory. This setup has educational purposes, is about the size of 20 m² and consist many features that resembles a modern factory. I took on the role of the project manager and finished the project with much acknowledgment but no real results. After that, I worked on this project during the summer break and made it to my thesis project. I got high recognition for this work as well, but again I could not really deliver any working system. After the state exam, I started full time at my workplace where I worked as a student, and I could not finish the project despite of my hopes.

3D printer building

I bought my first 3D printer in 2017. I used it for a few years modifying and adding more features to it. In 2020, I started building my own 3D printer because my first printer reached the end of its lifetime. Its last prints were critical components for my newer 3D printer. The newer printer is based on an open source project called HevORT. It is sophisticated and I managed to build an almost high-end machine on hardware cost.

Multicopter building

I got my first quadcopter as a gift and got me hooked hard. I learning to fly it well and started researching the hobby. After a few months of careful component selection, I ordered and built my first racer type quadcopter. Later I got into aerial photography type of drones and wanted to build a drone that could carry a semiprofessional camera. I designed and built a 550 hexacopter that could carry a camera. I even got into the agricultural branch of the drone technology, successfully generating a survey of a 5-hectare vegetable field.

Technology and Tools

3D CAD design and related

- Autodesk Inventor – Used during university and while working at Sagax Communication
- SOLIDWORKS – Used while working at EKC
- Ultimaker CURA – Using since 2017
- Autodesk Autocad – Started using at Morgan Advanced Materials

ECAD design

- Altium Designer – Using since 2018
- LTSpice – Beginner user, used for a project at EKC

IDEs

- Visual Studio – Used while working at Sagax Communications and during some hobby projects
- Visual Studio Code – Started using after leaving Arduino IDE for embedded development
- Arduino IDE – Used for hobby projects up until graduating from university

Frameworks and languages

- C# with Windows forms
- C/C++ with Arduino framework
- Dart with Flutter framework
- Used and made small projects with: Python, Java, HTML, PHP

Misc

- Advanced Windows and Linux user
 - PowerShell and Terminal
 - Have dual boot setup when I can afford it
- Advanced Office user

Languages

Hungarian (mother tongue), English (fluent, B2 certificate), German (C1 certificate)

Interests

Technology, Programming, Automation, Optimization, Tinkering, FPV drones, Welding, 3D printing, Video Games,