Mihailo Grbić

Electrical and Computer Engineering Student

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Education

2018 - *present*

Belgrade University, Faculty of Electrical Engineering
Belgrade, Serbia

Second-year student at the Electrical and Computer Engineering program (module Signals and Systems). Expected graduation date July 2022. GPA 9.79/10

2014 - 2018

Mathematical Grammar School
Belgrade, Serbia

Honors class of top twenty students based on their entrance exam score and their accomplishments on competitions. GPA 4.85/5

Work Experience

July 2019 - Oct. 2019

Microsoft Development Center Serbia, Cognition Serbia
Software Engineer Intern

*Was tasked with analyzing the viability of a new, confidential feature. Read around 20 science papers, filtered out 3 methods that were the most promising, implemented them, and performed extensive analysis of their performance and viability for commercial use. The methods were implemented using **Python** and **Pytorch**, and cover the topics of **geometric computer vision**, **automatic differentiation**, and **machine learning**.*

Projects

July 2018 - Dec. 2018

Pipelined FPGA architecture for filtering images with linear and adaptive median filter
Petnica Science Center

*Designed and implemented a pipelined **FPGA** architecture which applies linear and adaptive median filter on images, with focus on fast execution and minimal load on system memory bandwidth. The implemented architecture requires at least 9 times less system memory readings compared to a traditional, general-purpose processor implementation of these algorithms. Wrote a research paper which was featured at 2018. Annual Petnica Conference and was published in 2018. edition of the Petnica Science Journal.*

July 2017 - Dec. 2017

Training dataset enlargement using Generative Adversarial Networks
Petnica Science Center

*Tested the viability of using **Generative Adversarial Networks (GAN)** to enlarge training datasets for classification machine learning problems. Implemented a **CNN** classifier for the Street View House Numbers problem, and a **Deep Convolutional Generative Adversarial Network (DCGAN)**, using **Python** and **Tensorflow**. Wrote a research paper which was featured at 2017. Annual Petnica Conference and was published in 2017. edition of the Petnica Science Journal.*

Projects

May 2017 - June 2017

Digital Circuit Simulation
Mathematical Grammar School

*The goal of the project was to make a digital circuit simulator (inspired by Logisim), to implement it using **Object Oriented Programming** and to document the code fully. All basic logic gates were implemented, as well as wires, transistors, logical pins, clocks, and displays. Was done in a team of 3 people.*

Extracurricular Activities

Sept. 2016 - Sept. 2018

Sekcija Primenjene Fizike i Elektronike Matematičke gimnazije (PFEMG)
Founder and Head

- *Founded and lead a student club of Applied Physics and Electronics at Mathematical Grammar School.*
- *Treated it as a small startup, building it up from an empty, unused classroom to a well-respected club with over 30 members.*
- *Mentored student projects.*
- *Held lectures and workshops on a wide range of subjects.*
- *Managed the club's equipment and finances.*
- *Organized the club's participation and its displays at multiple science festivals, including Belgrade Science Festival and MakerFaire Vienna.*
- *Contacted potential sponsors and raised over $5k worth of funds and equipment for the club.*

Dec. 2015 - Nov. 2018

Petnica Science Center, Department of Applied Physics and Electronics
Attendee

Attended 15 weeks (in total) worth of seminars which consist of lectures and workshops on the subjects of electronics, robotics, control systems, computer vision, and machine learning. Worked on 3 summer research projects and wrote 2 research papers.

May 2018 - *present*

Junior Assistant

Hold lectures and workshops on the subjects of programming, computer vision, and machine learning. Mentor student projects. (4 weeks per year)

Aug. 2019

Petnica Summer Institute of Machine Learning (PSIML)
Attendee

*Attended a 10-day machine learning course organized by Microsoft Development Center Serbia. Implemented a neural network for **semantic segmentation** of a hand from depth images, as part of a small team project.*

Dec. 2015 - Dec. 2018

Computer Science Week at Mathematical Grammar School (CSNedelja)
Attendee

Attended the annual, week-long seminar consisting of lectures and workshops which cover a wide range of areas in computer science, held to a select group of students.

Dec. 2018 - *present*

Lecturer

Hold lectures and workshops on the subjects of computer vision and machine learning at the annual seminar.

Honours & Awards

2016 - *present* | **Scholarship for exceptionally talented students**
Government of Serbia, Ministry of Education

Awarded by the Serbian Ministry of Education, Sciences, and Technological Development for maintained academic success and exceptional achievements at national competitions and extracurricular activities.

2015 - 2017 | **Serbian High School Competition Awards**
Government of Serbia, Ministry of education

One 2nd and two 3rd awards at national physics competitions. One 3rd award and two honorable mentions at national programming competitions.

July 2018 | **RetailTech Hackathon 3rd place**
ICT Hub, Delhaize Serbia

A 48-hour hackathon with the challenge of improving the in-store digital experience of Delhaize markets. Was part of a 4 member team. We made an Android app MaxiGO which won 3rd place in a competition of 11 teams.

April 2017 | **CoderDojo Pančevo Robotics Hackathon 1st place**
Coder Dojo Pančevo

A 48-hour hackathon aimed at high school students with the challenge of making a creative and useful robot. Was part of a 3 member team. We made a robot SoilBuggy which won 1st place in a competition of 7 teams.

December 2016 | **Decembarac Debate Competiton, Best Individual Speaker**
Open Communication, Faculty of Law

An annual, team, debate competition played by British parliament rules. Awarded the Best individual speaker award out of 122 participants.

Courses & Certifications

May 2019 | **Stanford Machine Learning Course**
Coursera

Oct. 2018 | **VHDL and FPGA Development Online Course**
Udemy