

# Mihailo Grbić

Electrical and Computer Engineering Student

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in Mihailo Grbić

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## Education

2018 - present	<b>Belgrade University, Faculty of Electrical Engineering</b> Belgrade, Serbia <i>Second-year student at the Electrical and Computer Engineering program (module Signals and Systems). Expected graduation date July 2022. GPA 9.79/10</i>
2014 - 2018	<b>Mathematical Grammar School</b> Belgrade, Serbia <i>Honors class of top twenty students based on their entrance exam score and their accomplishments on competitions. GPA 4.85/5</i>

## Work Experience

July 2019 - Oct. 2019	<b>Microsoft Development Center Serbia, Cognition Serbia</b> Software Engineer Intern <i>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 <b>Python</b> and <b>Pytorch</b>, and cover the topics of <b>geometric computer vision</b>, <b>automatic differentiation</b>, and <b>machine learning</b>.</i>
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## Projects

July 2018 - Dec. 2018	<b>Pipelined FPGA architecture for filtering images with linear and adaptive median filter</b> Petnica Science Center <i>Designed and implemented a pipelined <b>FPGA</b> 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.</i>
July 2017 - Dec. 2017	<b>Training dataset enlargement using Generative Adversarial Networks</b> Petnica Science Center <i>Tested the viability of using <b>Generative Adversarial Networks (GAN)</b> to enlarge training datasets for classification machine learning problems. Implemented a <b>CNN</b> classifier for the Street View House Numbers problem, and a <b>Deep Convolutional Generative Adversarial Network (DCGAN)</b>, using <b>Python</b> and <b>Tensorflow</b>. Wrote a research paper which was featured at 2017. Annual Petnica Conference and was published in 2017. edition of the Petnica Science Journal.</i>

## Projects

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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

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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 20 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

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2016 - present	<b>Scholarship for exceptionally talented students</b> Government of Serbia, Ministry of Education <i>Awarded by the Serbian Ministry of Education, Sciences, and Technological Development for maintained academic success and exceptional achievements at national competitions and extracurricular activities.</i>
2015 - 2017	<b>Serbian High School Competition Awards</b> Government of Serbia, Ministry of education <i>One 2<sup>nd</sup> and two 3<sup>rd</sup> awards at national physics competitions. One 3<sup>rd</sup> award and two honorable mentions at national programming competitions.</i>
July 2018	<b>RetailTech Hackathon 3rd place</b> ICT Hub, Delhaize Serbia <i>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.</i>
April 2017	<b>CoderDojo Pančevo Robotics Hackathon 1st place</b> Coder Dojo Pančevo <i>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.</i>
December 2016	<b>Decembarac Debate Competition, Best Individual Speaker</b> Open Communication, Faculty of Law <i>An annual, team, debate competition played by British parliament rules. Awarded the Best individual speaker award out of 122 participants.</i>

## Courses & Certifications

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May 2019	<b>Stanford Machine Learning Course</b> Coursera
Oct. 2018	<b>VHDL and FPGA Development Online Course</b> Udemy