NIKOLA MIRKOVIC

+381 63 822 4773 | mn200418d@student.etf.bg.ac.rs

Education

School of Electrical Engineering, University of Belgrade | Belgrade, Serbia October 2020 - June 2026
Bachelor of Science in Electrical & Computer Engineering
GPA: 9/10 (last semester), 8.5/10 (third year), 8.04/10 (cumulative)
Relevant coursework: *Quantum mechanics, Statistical physics, Solid state physical electronics, Quantum electronics, Microelectronics and nanoelectronics, Optical telecommunications, Electromagnetics, Materials in electrical engineering, Probability and statistics, Theory of electric circuits, Signals and systems*

Professional Experience

University of Belgrade | Belgrade, Serbia October 2022 - Present
Independent project
- Designed and fabricated optical sensors for liquid-level detection in petroleum barrels.
- Programmed MATLAB simulations of particle collisions in a 3D ideal gas, employing Maxwell-Boltzmann statistics.
- Demonstration of light absorption and light scattering using smartphones and gradually diluted water ink, which lead to demonstrations of the experiment to the first-year students this school year.

Lawrence Livermore National Laboratory (LLNL) | Livermore, USA May 2025 - October 2025
Experimental Research Team, Fast Collisionless Shocks (Prof. Julien Fuchs' beamtime)
- Successfully generated shocks and associated very high-energy (>10MeV) accelerated protons using TITAN's ps-driver.
- Contributed to experimental setup of the vacuum chamber, optical probing, gas jet, perturbation beamlines, pulsed magnetic field generator (up to 50T), motor control systems.
- Designed, aligned, and optimized diagnostics including Thomson parabolas, electron and ion spectrometers based on FUJI's IP (image plate) technology, Streak cameras, Interferometry, RCFs (Radiochromic films) for proton energy spectra.
- Performed shock-wave data analysis using Neutrino software to extract plasma parameters from multi-detector datasets.

Laboratoire pour l'Utilisation des Lasers Intenses (LULI) | École Polytechnique, Paris, France March 2025 - July 2025
Internship, SPRINT Group (Prof. Julien Fuchs)
- Conducted experimental and theoretical research in high-energy-density and plasma physics with a focus on laboratory astrophysics.
- Analyzed data from prior beam campaigns and contributed to manuscript preparation with the SPRINT group.
- Assisted in ongoing experimental runs, supporting diagnostic setup and data interpretation.

Extreme Light Infrastructure - Nuclear Physics (ELI-NP) | Măgurele, Romania April 2025 - May 2025
Experimental Research Team, Dual Radiography Project (Itamar Cohen, CNRS beamtime)
- Enabled a novel dual (neutron and x-ray) interrogation method, based on ultra-intense lasers irradiating solid targets.
- Characterized the bright ~Mev-range X-rays produced by the multi-PW pulses irradiating thin solids, using partially transparent SiN targets, which correspond as well to an efficient source of high-energy protons.
- Optimized neutron production with high-Z targets (W, Au, Ta) while maintaining X-ray brightness and stability.
- Prepared the experiment by configuring neutron time of flight detectors, performing PIC simulations, RCF stack recipe calculations
- Supported shot execution, target fabrication, data collection, and preliminary analysis.

University of Belgrade | Belgrade, Serbia April 2023 - June 2023
Antenna Design Project (Prof. Miodrag Tasić)
- Designed and fabricated a CPW-Fed Super-Wideband Antenna with Modified Vertical Bow-Tie-Shaped Patch for Wireless Sensor Networks.
- Modeled architecture using Wipl-D Pro CAD and created a quadrangular model in Wipl-D Pro for performance optimization.
- Applied to pollution-detection applications across Serbian cities.

Other Activities

Čukalo Music Festival | Fruska Gora National Park, Serbia December 2022 – May 2025
Co-Founder, Head Organizer
- Created an independent two-day music festival (2023 and 2025) from scratch, in Fruska Gora National Park, with more than 300 people in attendance and 10 bands
- Lead team of 15 international volunteers
- Managed finance, marketing, music, art exhibit, catering, construction work and volunteers
- Čukalo 2025 had bands and artists spanning across Europe: https://cukalo.com/#hero

Oasis behind Boutazart Nait ounzar | Tagounite, Sahara, Morocco January 2024-March 2024
Intern/ volunteer
- Reconstructed traditional houses of the Berber people, destroyed after deserting the oasis due to climate change
- Restored wells and reconstructed the agriculture watering pools and irrigation systems

Skills

Software: Python, MATLAB, C, C++, Arduino, LabVIEW, Ansys Lumerical, Neutrino, CircuitMaker, ImageJ
Language: English, Serbo-Croatian, Spanish (limited proficiency), French (in progress)
Citizenship: Serbia (SRB), Croatia (CRO)