

# Daniela Nikoloska

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## Education

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### **Master of Science in Engineering, Electrical Engineering**

University of Nevada, Las Vegas | Dec. 2025 | GPA: 3.5

**Thesis:** *Design and Development of Biomimetic Hydrogel Interfaces for Enhanced Bioelectrical Signal Acquisition*

Advisor: Shengjie Zhai, Ph.D.

### **Bachelor of Science in Engineering, Electrical Engineering**

University of Nevada, Las Vegas | May 2023

Minor in Mathematics

## Skills

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- **Programming Languages:** C/C++, Python, RISC-V Assembly, System Verilog, LabVIEW
- **Microcontroller Platforms:** Arduino, Raspberry Pi, NVIDIA Jetson Nano, FPGA
- **3D CAD Design Software:** SolidWorks
- **Circuit & Simulation Tools:** LTspice, MATLAB, Multisim
- **Nano/Micro Biomaterial Characterization:** Electrical Impedance Spectroscopy (EIS), Fourier Transform Infrared (FTIR) Spectroscopy, Scanning Electron Microscope (SEM), Fluorescence Spectroscopy
- **Languages:** English, Spanish (intermediate), and Macedonian (intermediate)

## Research Experience

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### **Graduate Research Assistant** | University of Nevada, Las Vegas

June 2024 – Aug. 2024

- Supported lab-scale hydrogel synthesis and mechanical characterization for multiple research initiatives.
- Assisted in experimental setup, data acquisition, and documentation of soft-material testing protocols.

### **Graduate Research Fellow** | Nevada NASA Space Grant Consortium

Aug. 2023 – Aug. 2024

- Conducted a comprehensive study using sonic-powered microgravity-assisted tissue chips to simulate space radiation effects on the human immune system.

### **Undergraduate Research Assistant** | University of Nevada, Las Vegas

Jan. 2022 – May 2023

- Conducted extensive research in the field of acoustic-levitated microgravity simulator and organ-on-a-chip design, evaluation, and 3D manufacturing.

## Master's Thesis

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University of Nevada, Las Vegas | 2023 – 2025

- Engineered a PDA-PAM conductive hydrogel composite incorporating Fe<sub>3</sub>O<sub>4</sub> nanoparticles, graphene nanoplatelets, and LiCl to optimize electrical conductivity and adhesion.
- Designed and built a custom tensile testing platform integrating LabVIEW, stepper motor control, and load-cell acquisition.
- Performed SEM imaging, impedance spectroscopy, cyclic voltammetry, and chronoamperometry.
- Conducted 12-lead ECG acquisition under resting and dynamic conditions to evaluate signal-to-noise ratio and motion artifact reduction.
- Analyzed electrical performance data using MATLAB to quantify impedance and signal integrity improvements.
- Optimized material formulation to improve electrical performance, mechanical stability, and signal integrity.

## Projects

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### **Text and Emotion Recognition Design Project**

Aug. 2022 – May 2023

- Developed NuSpex, a biomedical device intended to enhance the daily life and independence of visually impaired and blind individuals by enabling them to read everyday texts such as signs, labels, and instructions.
- Integrated camera modules with Raspberry Pi for image acquisition and processing.
- Developed a Python-based emotion recognition pipeline and trained a machine learning model for facial expression classification.
- Preprocessed image datasets and tuned hyperparameters to improve classification accuracy.
- Evaluated system latency, classification accuracy, and responsiveness during prototype testing.

### **Frequency Sound Generator Design Project**

Nov. 2021 – Dec. 2021

- Designed, simulated, and tested a tone generator circuit system using LTspice.

## Work Experience

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### **Graduate Teacher Assistant** | University of Nevada, Las Vegas

Jan. 2025 – May 2025

- Served as a teaching assistant for EE 360 Signals and Systems I under Dr. Ebrahim Saberinia, supporting a class of 30 students.
- Graded student homework, quizzes, and exams for the lecture section.
- Assigned and graded MATLAB computer assignments.

- Graduate Teacher Assistant** | University of Nevada, Las Vegas Aug. 2024 – Dec. 2024  
 - Served as a teaching assistant for CPE 200 Digital Logic Design II under Dr. Sarah Harris, supporting a class of 64 students.  
 - Graded student homework and conducted weekly office hours to provide additional assistance.  
 - Guided students through Fourier transforms, system stability analysis, and digital logic implementation.
- Learning Center Instructor** | Sapience Oct. 2023 – Jan. 2024  
 - Provided individualized tutoring in higher-level mathematics to students in grades K-12.
- Electrical Engineering Intern** | VisionAid May 2023 – Aug. 2023  
 - Designed and prototyped CaneIQ, an assistive mobility device integrating embedded electronics and sensor systems.  
 - Interfaced ultrasonic sensors with Arduino for real-time distance measurement and obstacle detection.  
 - Implemented communication between Arduino sensor modules and Raspberry Pi processing unit for coordinated data handling.  
 - Assembled the full external enclosure in SolidWorks and fabricated the housing using 3D printing for functional prototyping.  
 - Conducted field testing at a blindness training facility featuring simulated residential and outdoor transit environments, including a model home and bus platform, to evaluate device performance in real-world navigation scenarios.
- Pharmacist Technician** | Walgreens Aug. 2019 – Dec. 2019  
 - Accepted and processed prescriptions, accurately counting and filling medications following pharmacist instructions.

## Publications

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Nikoloska, D. "Design and Development of Biomimetic Hydrogel Interfaces for Enhanced Bioelectrical Signal Acquisition." *Manuscript in preparation.*

## Presentations

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Nikoloska D, *Comprehensive Study Using Sonic-Powered Microgravity-Assisted Tissue Chips to Simulate Space Radiation Effects on the Human Immune System*, NASA Nevada EPSCoR Statewide Meeting, 2024 April 19, Las Vegas, NV

## Relevant Coursework

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### Circuits & Electronics

Circuits I & II | Electronics I | Solid State Devices | Analog IC Design

### Signals & Systems

Signals & Systems I & II | Digital Signal Processing | Communication Systems | Control Systems I

### Digital & Computer Systems

Digital Logic Design I & II | Advanced Computer Systems Architecture | Machine Learning Applications

## Awards

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- NASA Space Grant Graduate Fellowship** 2023 – 2024  
 - Awarded a competitive fellowship to support graduate research in the field of space science and technology.
- Roy and Helen Kelsall Engineering Scholarship** 2023 – 2024  
 - Received a merit-based scholarship to support graduate studies in the field of engineering.
- Differential Fees Undergraduate Scholarship** 2022 – 2023  
 - Awarded a scholarship based on academic achievement and financial need to support undergraduate studies in engineering.
- Wolzinger Family Engineering Scholarship** 2021 - 2022  
 - Received a scholarship recognizing academic excellence and potential in the field of engineering.

## Academic Activities

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- GPSA Council Representative** | University of Nevada, Las Vegas Jan. 2024 – May 2025  
 - Represented the Electrical & Computer Engineering department within the Graduate & Professional Student Association (GPSA), advocating for graduate student academic and research interests.  
 - Participated in policy discussions, departmental funding allocations, and academic initiatives affecting graduate programs.  
 - Served as liaison between faculty leadership and graduate students, communicating concerns and facilitating resolutions.
- RebelSat Member** | University of Nevada, Las Vegas Jan. 2023 – May 2023  
 - Assisted in the design and integration of satellite solar panel assemblies for power generation and subsystem support.  
 - Collaborated with multidisciplinary teams (structures, communications, software) to support overall spacecraft integration.

## Professional Organizations

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- IEEE Engineering in Medicine and Biology Society 2022 - Present  
 Biomedical Engineering Society 2022 - Present  
 IEEE (Institute of Electrical and Electronics Engineers) 2020 - Present