Daria Kot

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Goal Statement

Passionate about embedded systems, I aim to work at the intersection of software and mechanical projects in robotics or aerospace applications. Following my undergraduate studies, I plan to deepen my engineering expertise through a master's in mechanical engineering with a concentration in robotics.

Education

Cornell University, College of Engineering Ithaca, NY
Bachelor of Science in Computer Science, Minor in Robotics, Minor in Fine Art *August 2021 - May 2025*

Current Courses: *Data Science, Integrated Sensors and Actuators*
Completed Coursework: *Algorithms, Operating Systems, Computer System Organization, Artificial Intelligence, Practicum in AI, Machine Learning, Data Structures & Functional Programming, Object Oriented Prog & Data Struc, Statistics, Multivariable Calculus, Foundations Robotics, Fast Robots, Mechatronics*

Northern Virginia Community College 2021' Manassas, VA
Associates of Science in Information Technology, Summa Cum Laude *August 2019 - June 2021*
Career Studies Certificate: Database Specialist

Battlefield High School 2021' Haymarket, VA
Center for Applied Science, Interactive and Information Technology *August 2017 - June 2021*

Technical Skills

- **Programming Languages:** C++, Python, C, Java, OCaml, Java SWING & HTML/CSS
- **Developer Tools:** Git, GitHub, VS Code, Eclipse, SVN, IntelliJ, SolidWorks (CAD), ROS (Robot Operating System)
- **Hardware and Electronics:**
  - Microcontrollers: Arduino, Raspberry Pi, Artemis
  - Sensors: IMU, Altimeter, GPS, SD Card reader, ADC, DAC, TOF
  - Actuators: Servo motors, Stepper motors
  - Circuit Design: Altium (PCB layout)
- **Control Systems:**
  - Closed-Loop Control Systems (PID)
- **Machining & Fabrication:** 3D Printing, Laser Cutting, Lathe, and Mill
- **Programming Paradigms** Functional Programming, Object-Oriented Programming

Work Experience

Cornell Rocketry - Student Engineering Project Team Ithaca, NY
Recovery and Payload Sub-team Lead *May 2024 – Present*

- Collaborating with 50 team members to design, manufacture, and test a high-powered rocket with an autonomous recovery system to compete in the Spaceport America Cup.
- Managing an 8 member sub-team by establishing system requirements, creating a yearlong schedule, and facilitating weekly meetings and work sessions to meet deadlines.
- Leading the integration of an L3 high-powered rocket, incorporating the Break Line Manipulation Systems (BLiMs), avionics bay, and dual-stage recovery to ensure reliability on the competition rocket.
- Directing design and integration of an air-sampling payload with six subsystems, including filtration and Venturi scrubber collection, coulter counter analysis enabling real-time particulate analysis, structural design, automated vent control mechanisms, electronics, and software.
- Overseeing recruitment through information sessions, applications, interviews, and onboarding new members.
- Collaborating with MechE, ECE, and Software sub-teams to integrate Recovery & Payload systems.

Student Engineering Project Team Member *October 2022 – May 2024*

- Led development of electronics and software for the Break Line Manipulation System (BLiMs), utilizing C++, Python, and microcontrollers.
  - Developed an electronic suite comprising sensors (barometric altimeter, compass, IMU), motor drivers, stepper motors, and a microcontroller.
  - Designed and implemented a closed-loop PID control system to query sensor data, process telemetry, and drive stepper motors, pulling parachute break lines to guide the rocket's descent in a predetermined cardinal direction.
- Designed, manufactured, programmed, and tested peripheral electronic systems needed for testing BLiMs, including a remote actuator, and sensor board.

- Built and programmed a remote actuator comprising of a pair of microcontrollers and pair of radio modules. When a signal on the ground module was sent, the TX module transmitted a signal to RX module, triggering rocket section separation, enabling effective testing of parachute inflation midair.
- Sensor board consisted of altimeter, compass, IMU, GPS, SD Card reader and microcontroller, used to collect and store telemetry data during parachute drop tests.

- Integrated electronics and tuned PID controller for a camera stabilization Payload that kept camera orientation stationary against the roll of the rocket during flight.
- Placed 2nd out of 160 teams in '22-'23 Spaceport America Competition, 1st out of 10 teams in 10k Student Research and Development Category.

FIND Research Group - ECE Department Cornell Ithaca, NY

Undergraduate Researcher *June 2024 – Present*

- Assisting Professor to develop a digital communications tool that simulates data transmission over Wi-Fi.
- Engineering electronics that interface with a server, sample, distort, and transmit .wav files.
- Programming and testing software to ensure seamless integration with electronic components.

Progeny Systems Corporation Manassas, VA

Software Developer Intern *May 2022 - July 2022*

- Developed GUI testing tool which simulated power control panel of Common Weapon Launcher on submarines.
- Utilized Java Swing and Linux to build GUI and setup client server connections.
- Collaborated with 10 engineers to determine the requirements of testing tool.

Mathnasium & Battlefield High School Bristow, VA

Math and PL/SQL Database Tutor *June 2020 - April 2021*

- Taught approximately 50 students from various age ranges (e.g. algebra, calculus, trigonometry, etc.).
- Provided homework assistance and reinforced topics (e.g. querying, joins, partitions, views, transactions, constraints, data integrity, etc.).
- Trained 5 new tutors by explaining administrative tasks and demonstrating communication styles with students.

Skills and Interests

Fluent in Russian, Painting, Printmaking, Drawing, Woodworking/Whittling, Rock Climbing, Boxing