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 applications. Following my undergraduate studies, I plan to deepen my engineering expertise through work experience and 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: Robot Learning, Designing with Microcontrollers
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, Data Science, Integrated Sensors and Actuators

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.

Fast Robots Teacher's Assistant   Ithaca, NY
Undergraduate TA   *December 2024 –Present*
- Provided hands-on assistance in debugging software and hardware issues, offering personalized guidance to help students troubleshoot and refine their lab projects.
- Developed and documented a step-by-step guide for students to set up and manage their own websites, enabling them to effectively showcase their projects and skills online.

FIND Research Group - ECE Department Cornell   Ithaca, NY
Undergraduate Researcher   *June 2024 – December 2024*
- 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