Ryan Christ

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Visit my portfolio: ryanjchrist.github.io

Education

Duke University - Pratt School of Engineering May 2026
Bachelor of Science in Mechanical Engineering & Computer Science - Double Major *Durham, NC*

- **Cumulative GPA:** 3.7 / 4.0, Dean's List 2023
- **Relevant Coursework:** Thermodynamics, Fluid Dynamics, Structure & Properties of Solids, Statics & Dynamics, Mechanical Engineering Design, Control Systems, Mechatronics, Data Structures & Algorithms, Computer Architecture

Hilton High School June 2022
GPA: 4.0 / 4.0 *Hilton, NY*

- **Awards:** Valedictory Honors, Academic Merit, Chemistry Achievement Award, MCPSACC Top Scholar Athlete

Experience

O_3ST - UAVs in Support of Marine Science September 2024 - Present
Electrical Engineering Intern *Virtual*

- Updated the preexisting altimeter for improved accuracy (±1 cm) and compatibility with off-the-shelf drones, including DJI Phantom, Mavic, Inspire, and Skydio 2+. Contributed to redesigning the altimeter housing in SolidWorks for better integration.
- Optimized memory usage on the SparkFun ProMicro microcontroller using Arduino IDE. Enhanced drone data logging with IMU tilt compensation, a 1D Kalman filter for noise reduction, and time/date-based log filenames.
- Improved altitude tracking by integrating the LW20/C Laser Rangefinder (I2C) and replacing the Grove GPS module with the compact GP1818MK (UART) for greater efficiency.

Duke University - Bass Connections Research April 2024 - May 2025
Project Title: Using Drones and Radio Telemetry Systems To Monitor the Health of Endangered Elephants *Durham, NC*

- Conducted drone flights to establish safe flight protocols for capturing elephant body condition images. Optimization variables included flight altitude and speed to minimize disturbance to African elephants.
- Analyzed drone sound profiles of the DJI Mavic 3 and Phantom 4 using Python, Raven, and R. Utilized spectral analysis to compare noise levels against an African elephant audiogram.
- Processed and evaluated drone acoustic data to determine the impact of UAV generated noise on elephant behavior.
- Analyzed camera trap and drone images to assess elephant body condition. Developed a novel scoring technique for evaluation.

Monroe County - Department of Transportation May 2024 - August 2024
Engineering Intern - Highway & Bridge Engineering *Rochester, NY*

- Calculated moment arms for traffic signal masts through analysis of load factors such as weight, wind, ice, and factors of safety. Ensured compliance with updated engineering standards to maintain structural integrity.
- Streamlined the inspection and reporting process for 192 bridges and 344 major culverts with use of SAP and Excel.
- Analyzed traffic signal electrical and structural assembly schematics. Redesigned parking lot layout plans on AutoCAD.
- Engaged in meetings and attended site visits for Capital Improvement projects.

Duke University - Pratt School of Engineering August 2024 - Present
Teacher Assistant - Mechanics of Solids (EGR 201) *Durham, NC*

- Led laboratory sessions and instructed students in the operation of the Tinius Olsen H50KS Load Frame and Tinius Olsen Lo-Torq Machine to analyze tension, torsion, and buckling material failures, emphasizing the practical applications of material testing.
- Taught students how to apply principles of statics, dynamics, mechanics, and stress analysis to solve engineering problems.
- Assisted students in analyzing experimental data to generate stress-strain curves, interpret material behavior, and evaluate properties such as Young's modulus, shear modulus, and material failure modes.

RJ Christ Excavating & Paving June 2018 - August 2024
Seasonal Construction Worker *Hilton, NY*

- Excavated and installed residential and commercial asphalt driveways.
- Operated and helped maintain a diverse set of heavy machinery including loaders, excavators, backhoes, and pavers.
- Rewiring a 1969 Dodge Coronet. I am currently installing a new wiring harness, troubleshooting electrical circuits, and ensuring proper integration of lighting, ignition, and other accessory systems.

Technical Skills

Technical: Machining, 3D Printing with Prusa i3 MK3S+ & Ultimaker 2/3, Soldering, Laser Cutting
Software: SolidWorks, Ansys, LabVIEW, AutoCAD
Languages: C, C++, Python, MATLAB, Java, LaTeX (used to create this document)

Social Engagements

Club Member : Men's Club Soccer, IM Soccer
Volunteer: Hilton Elementary School - Teacher Assistant, Tutoring
Sports-Engagements: Soccer, Running, Golf
Interests: Prototyping, 3D Printing, Robotics, Drones, Automation