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:** 3.69 / 4.00, Dean's List 2023
- **Relevant Coursework:** Calculus I, II & III, Linear Algebra, Diff Eq, Physics I & II, Thermodynamics, Control Systems, Structure/Properties of Solids, Mechatronics, Mechanics of Solids, & Dynamics, Chemistry, CS: Data Structures & Algorithms, Computer Architecture, Fluid Dynamics, Mechanical Engineering Design

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*
- Developed a precise altimeter, down to ±1 cm accuracy, compatible with many off the self drones including the DJI Phantom, Mavic, Inspire, and Skydio 2+.
- Optimized memory usage on the SparkFun ProMicro microcontroller using the Arduino IDE. Enhanced drone data logging by introducing vertical altitude tracking through IMU tilt compensation and implementing time/date-based log filenames.
- Added support for the LW20/C Laser Rangefinder to improve altitude tracking operating over I2C protocol. Integrated the cost effective and compact GP1818MK GPS module to replace the larger Grove GPS module using UART serial communication.

Monroe County - Department of Transportation May 2024 - August 2024
Engineering Intern - Highway & Bridge Engineering *Rochester, NY*
- Automated data integration of bridge and culvert reports between SAP software and Excel, utilizing the command line.
- Streamlined the inspection and reporting process for 192 bridges and 344 major culverts.
- Calculated moment arms for traffic signal masts, analyzing load factors such as weight, wind, ice, and included factors of safety. Ensured compliance with updated engineering standards to maintain structural integrity.
- Analyzed traffic signal electrical and structural assembly schematics.
- Redesigned parking lot layout plans on AutoCAD LT ensuring accuracy to design specifications.
- Engaged in meetings and attended site visits for the planning, programming, and overseeing of design and construction of Capital Improvement highway, bridge, and culvert projects.

Duke University - Bass Connections Research April 2024 - Present
Project Title: Using Drones and Radio Telemetry Systems To Monitor the Health of Endangered Elephants *Durham, NC*
- Determined the audio profiles of the DJI Mavic 3 and Phantom 4. Compared the audio profiles through spectral alaysis and creation of spectrograms against African elephant audiograms to assess disturbance to elephants.
- Analyzed camera trap and drone images to assess elephant body condition, developing a novel scoring technique for evaluation.
- Analyzed GPS collar data on GIS to determine home range size and habitat use (data was collected between 2022 - 2024).
- Conducted literature reviews and participated in decolonization discussions for international research in Zambia.

Duke University - Pratt School of Engineering August 2024 - December 2024
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.
- Leading the rewiring efforts for the restoration of a 1969 Dodge Coronet, including installing a new wiring harness, troubleshooting electrical circuits, and ensuring proper integration of lighting, ignition, and accessory systems.

Technical Skills

Technical: Machining, 3D Printing with Prusa i3 MK3S+ & Ultimaker 2/3, Soldering, Laser Cutting
CAD Softwares: Solidworks, AutoCAD, Fusion 360, Inventor
Languages: C, C++, Python, MATLAB, Java, Maple, Visual Basic, LaTeX (used to create this document)

Social Engagements

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