Kevin Koffroth

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EDUCATION

University of Georgia

Bachelor of Science in Computer Systems Engineering | GPA: 3.20 — December 2021

RELEVANT SKILLS

- Languages (in order of experience): Python, C/C++, Java, C#, Verilog, Bash, JavaScript, Assembly (68HC11/ARM)
- CAD/Simulation: Fusion 360, EAGLE CAD, Multisim, ISE Design Suite, Gazebo
- Software Frameworks/Tools: ROS (Robot Operating System), Docker, Git, GitHub Actions, Linux, Windows, JetBrains IDE, Unity Game Engine
- Microcontrollers/SoCs: Arduino/AVR, Raspberry Pi, ARM
- Electronics: Foundational Knowledge (Through advanced transistor circuits), Soldering, breadboarding, use of common tools such as Oscilloscope, AFG, Multimeter, etc.
- Other: Clear and Concise Technical Communication, Microsoft Office Suite, Adobe Premiere Pro, LaTeX, Markdown

EXPERIENCE

Student Grader/Teaching Assistant – UGA College of Engineering — November 2020 – Present

- Assisted in designing, teaching, and administering the ECSE 2920 (Design Methodology) Spring 2021 course. Duties included designing and verifying requirements for the class project, building a `golden model` of said project, writing documentation and instructions for students using Markdown on GitHub, managing the class GitHub organization, assisting students, and grading.

Logistics Officer – UGA Robotics Club — October 2019 – Present

- Manage the UGA Robotics Club makerspace, assess the needs of the club and ensure those are fulfilled through the purchase or construction of tools/parts/other equipment.
- Direct several club projects and initiatives, including the ASABE Robotics Competition and Autonomous Multirotor Battery Swap Project. Created an online tutorial series to teach the fundamentals of ROS robotics programming.

CURO Researcher – Biosensing and Instrumentation Lab — January 2020 – June 2020

- Developed a web-based GUI for ROS to monitor and control the various research robots in the lab.
- Designed a browser-based 3D simulation environment, capable of telemetry and rudimentary control, using ROS and its accompanying JavaScript libraries.

PROJECTS

Autonomous Multirotor Battery Swap Project – UGA Robotics Club — September 2020 – Present

- Lead a team of UGA Engineering students across multiple disciplines to create a fully autonomous battery swapping system for multirotors. The project employed PX4 Autopilot software, QGroundControl, ROS2, and OpenCV to create a landing system capable of placing the multirotor on a platform within a tolerance of 5” or 13 cm in each direction. Additionally, we used Embedded C/C++ on an AVR microcontroller to facilitate the battery swapping functionality once the multirotor landed.

2020 Robotics Competition – American Society of Agricultural and Biological Engineers — December 2019 – July 2020

- Vision Team Lead in developing a robot to perform a simulated agricultural task to compete internationally. Led team to design and implement a camera sensing system to determine the health and germination status of mock corn stalks on a simulated field using Python, Robotis Dynamixel smart actuators, OpenCV, and Tensorflow. The team’s competition whitepaper placed *2nd overall* in the paper writing category.

UGA Hacks 5 – Hackathon — February 2020

- Collaborated with a team to design a VR system capable of interfacing with a robotic arm to showcase a more intuitive way of teleoperating similar systems in the field. Developed with the Unity Game Engine, C#, and Python. Placed *1st overall*.

2020 Bayer Alka-Rocket Challenge – Student Aerospace Initiative (SAI) — January 2019 – January 2020

- Recovery system team member for SAI’s submission to the 2020 Bayer Alka-Rocket Challenge. Developed a parachute deployment mechanism using an Arduino Nano (C++), Accelerometer, and PWM servo. Our team was *1 of 5 selected as finalists* to compete in Orlando, Florida.