Jack E. Foster

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EDUCATION

The University of Colorado Boulder   *Spring 2024*
- *Bachelor of Science - Integrated Design Engineering*   *GPA: 3.25*
  - *Mechanical Engineering Concentration, General Business Emphasis*

PROFESSIONAL EXPERIENCE

H.P. Environmental   *Herndon, VA*
Site Assessment Intern   *June 2021 - January 2023*
- Managed the $1.2 million construction of a 55 well permeable reactive barrier to stop groundwater contamination from spreading into the surrounding area
- Researched GIS software to make an informed decision about a software application that was right for the company, I then purchased, learned, and consulted on the softwares of Surfer and Strater to produce reports that were competitive with those of rival companies
- Supervised and monitored the drilling of 84, 550 foot deep wells to construct an elementary school's geothermal heating and cooling system while overcoming language barriers between teams
- Performed four underground storage tank removals with hazmat teams at the Walter Reed Army Medical Center
- Measured contamination levels in soil and water using a PID detector, as well as the dispersion radius of subsurface injections through visual inspection of monitoring wells, ensuring the permeable reactive barrier 's effectiveness in reducing levels of chlorinated volatile organic compounds by up to 90%

PROJECTS

The R.O.C.K. / DEVCOM Army Research Laboratory / Senior Design   *Boulder, CO*
Electromechanical Engineer   *August 2023 - April 2024*
- Collaborated with a team of ten and a client to design and manufacture a standalone three-tiered sensing system that detects and launches a tracking device at an approaching car, reducing operational risk for deployed soldiers
- Using C++ and a Teensy 4.0, I created algorithms to integrate all electronics, including the analog firing system, analog power conservation system, microphone, Jetson nano, camera, and ultrasonic sensor.
- Responsible for the long range and short range sensing systems, system integration and unification, waterproofing and dustproofing up to IP67, as well as the design of the sensor mounts

The PAK / Herd Collective / Invention and Innovation   *Boulder, CO*
Team Lead/Developer   *January 2023 - May 2023*
- Worked with a team of six to create a wristband that monitored and evaluated weightlifting exercises to improve muscle development, performance, and consistency
- Programmed an ESP32 to count repetitions, provide haptic feedback, measure time under tension, and establish a wireless connection with an application
- Created algorithms that identify when an exercise was being performed, count repetitions, set the pace for each exercise, and implemented Bluetooth low energy functionality

Powder Control / Arapahoe Basin / Projects for the Community   *Boulder, CO*
Team Lead/Physical Design   *August 2022 - December 2022*
- Partnered with Arapahoe Basin Ski Resort to create a brand-new digital sign
- Completed the task of displaying the open/close status of ski zones via radio communication from the ski patrol headquarters, to maximize the time ski patrol spent maintaining safety precautions
- Primary responsibilities for this project included waterproofing all electrical components, designing the LED housing, and developing aesthetic designs

CERTIFICATIONS, SKILLS & INTERESTS

- CSWA - Certified Solidworks Associate
- Passed The Fundamentals of Engineering Other Disciplines Exam
- Arduino, SolidWorks, OnShape, Eagle, Matlab, Surfer and Strater, Google Suite, and Microsoft Suite
- Interests: Snowboarding, Hiking, Climbing, Water Skiing, Wakeboarding, Surfing, and Sailing