McKinley Blandford

View my personal projects: kinblandford.com/home/portfolio

Education

University of Utah - College of Engineering AUGUST 2021 – MAY 2025
Mechanical Engineering B.S. Undergrad ***4.0 GPA***

Research Experience

UROP Scholar MAY 2023- AUGUST 2023
Utah Wearable Robotics Laboratory

- Worked under Dr. Haohan Zhang to create an eye-tracking based control software for a robotic neck exoskeleton.
- Collaborated with other engineers to understand the kinematics of the neck exoskeleton, discuss various control schemes, and build upon their previous work.
- For more information, see the 'projects' section below.

Assistant Undergrad Researcher JANUARY 2022- JUNE 2022
University of Utah Department of Mathematics

- Worked under professor Kenneth M. Golden on the mathematical modeling of arctic sea ice.
- Began development of OpenPore, a microporous medium generation and analysis tool.
- Briefly worked on fractal dimension analysis of arctic sea ice.

Projects (for many more, see: kinblandford.com/home/portfolio)

Eye Tracking Controlled Robotic Neck Exoskeleton
Research Project @ Utah Wearable Robotics Laboratory

- Developed a Python-based control software for Linux-based single board computers to control a robotic neck exoskeleton using eye-tracking. This technology will be used to assist patients with neck weakness.
- Leveraged sophisticated inverse kinematics in order to accurately control the neck exoskeleton inside of its workspace.
- Designed a GUI for real-time modification of control modes, filtering algorithms, and visualization of gaze position and 3d exoskeleton simulation.
- Designed and built a 2DOF test robot to validate software proficiency.
- See: https://www.kinblandford.com/home/portfolio

Desktop RPN Calculator
Personal Project

- Created a fully functioning RPN calculator for desktop computers. Written in python.
- Features include: all standard scientific calculator functions, function definition, numerical integration and differentiation, numerical root-finding, matrix operations, variable definitions, powerful unit conversions, and my own functional programming language.
- See: https://www.kinblandford.com/home/blang

Automated Ping-Pong Ball Launcher
School Project

- Programmed a robot in Arduino C to automatically launch ping pong balls into targets.
- My robot won first place in a competition against 70 teams.
- See: https://github.com/nawper02/Ping_Pong_Launcher

Numerical Modeling / Optimization Project
School Projects

- Worked with two other engineers to create a mathematical model and simulation of a pneumatic-piston powered train and performed multivariate optimization on its parameters.
- Implemented exhaustive search, a modified Monte-Carlo optimization method, and multiprocessing in Python.
- See: https://github.com/nawper02/Numerical_Methods_Team.

Abilities

Software : Solidworks, Autodesk Fusion 360, Adobe Suite
Fabrication : Metalworking, Welding, Woodworking, 3D Printing
Programming Languages : Python, MatLab, C
Dev Tools : Git, VSCode, JetBrains IDEs, LLM's

Awards, Honors, & Certifications

Texas Instruments Scholarship Recipient
Texas Instruments *2023*

Valedictorian
Highland High *2021*

CSWA SolidWorks Certification
University of Utah *2021*

CTE Welding and Machining Certification
Highland High School *2021*

Certified Welding Technician
Highland High School *2021*

Sterling Scholar - Skilled and Technical
Deseret News *2021*