

McKinley Blandford

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

Education

University of Utah - College of Engineering

AUGUST 2021 – MAY 2025

Bachelor of Science in Mechanical Engineering

4.0 GPA

Professional Experience

Robotics Researcher

MAY 2023- AUGUST 2023

Utah Wearable Robotics Laboratory

- Worked under Dr. Haohan Zhang to create an **eye-tracking** 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 detailed 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 more projects, 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>

Automated Robotic 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.

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 **7 design parameters**.
- Implemented exhaustive search, a modified Monte-Carlo optimization method, and multiprocessing in Python.
- See: https://github.com/nawper02/Numerical_Methods_Team.

Desktop RPN Calculator

Personal Project

- Developed a robust **RPN calculator** for desktop computers. Written in **python**. Free to use and open-source.
- 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/blank>

Skills

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

Texas Instruments Scholarship Recipient	
<i>Texas Instruments</i>	2023
Valedictorian	
<i>Highland High</i>	2021
Sterling Scholar - Skilled and Technical	
<i>Deseret News</i>	2021

Certifications

CSWA SolidWorks Certification	
<i>University of Utah</i>	2021
CTE Welding and Machining Certification	
<i>Highland High School</i>	2021
Certified Welding Technician	
<i>Highland High School</i>	2021