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/blang

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
Texas Instruments *2023*

Valedictorian
Highland High *2021*

Sterling Scholar - Skilled and Technical
Deseret News *2021*

Certifications

CSWA SolidWorks Certification
University of Utah *2021*

CTE Welding and Machining Certification
Highland High School *2021*

Certified Welding Technician
Highland High School *2021*