HRIS PRASANNA

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SUMMARY

Detail-oriented mechatronics engineer passionate about advancing control applications through high-quality research and creative problem solving. Hands-on experience developing real-time robotic control systems and highly proficient in rapid prototyping, embedded systems, programming, and data science.

SKILLS

Controls, Mechatronics, & Robotics

RT Adaptive Control | Modern Control Emb. Computing | BLDC Mtr. Control ElectroMech. System Modeling

Feedforward Control | Serial Interfaces

Hardware & Product Development

Microcontrollers 3D Printing DFMA DFMEA Machining (CNC, Mill, Lathe) PID Servo DAQ | Sensors | Soldering **DIG/ANLG Circuits** Shielding GD&T

• Programming & Software Tools

Python LabVIEW C/C++ | MATLAB Pytorch Arduino LaTeX **Optuna** SOLIDWORKS | HMI/GUI Dev.

Data Science

Deep Learning Machine Learning Reinforcement Learning Vision Optimization System ID PCA Time Series Analysis & Forecasting

EDUCATION

M.Sc. in Mechanical Engineering -Mechatronics, Controls, & Robotics University of Washington - GPA: 3.9/4.0 Expected December 2021

B.Sc. in Mechanical Engineering Cal Poly, San Luis Obispo - GPA: 3.5/4.0 **Sep 2013 - Dec 2017**

EXPERIENCE

Graduate Research Assistant

Center for Limb Loss & Mobility

Jul 2019 - Present

- Invented an adaptive control strategy for a robotic ankle prosthesis which significantly improved amputee walking symmetry <a>Z
- Designed a real-time LabVIEW program which reliably executed deterministic tasks related to control, DSP, & HMI commands 1
- Built a 3D-printed embedded system which included sensor interfaces, DAQ, custom circuits, shielding, & BLDC servo control
- Developed deep neural networks to accurately predict human-robot system dynamics for future prosthesis control methods 🗾 🖸
- Executed bench tests, conducted experiments, and implemented a data-driven learning pipeline to analyze & evaluate the device

Research & Test Engineer

Center for Limb Loss & Mobility

₩ Feb 2018 - Jul 2019

- Implemented computer vision techniques & digital signal processing pipelines to X-ray video data in order to track 3D bone motion 2
- Created a temperature feedback controller using an Arduino & LabVIEW which reduced steady state percent error to 3.5% 2
- Mentored 4 teammates through their mechanical design projects

R&D Engineering Co-Op Intern

m Jun 2016 - Jan 2017

- Developed MATLAB programs that reduced the time needed to complete the product testing & analysis pipeline by 66% 2
- Presented cross-functional reports for future development strategies

Project Engineering Intern

City of Lynnwood

₩ Jun 2017 - Sep 2017

• Formulated & executed a city project 2 months ahead of schedule

PROJECTS

Tetris-Playing AI Agent

University of Washington

₩ Sep 2020 - Dec 2020

Applied RL techniques in Python to create a Tetris-playing AI agent that cleared over 88,000 lines, beating the Guinness Record of 4,988

Cerebral Palsy Rehabilitation Product Design & Fabrication

m Jan 2017 - Dec 2017

United Cerebral Palsy (UCP) & Cal Poly

Designed, built, & tested an underwater stationary cycle for UCP clients

using DFMA, DFMEA, & machining techniques (CNC, mill, drill) 2

Special Olympics Design & Fabrication Project

Special Olympics Southern California

m Apr 2017 - Jun 2017

Constructed a wheelchair-accessible award stand for athletes