CHRIS 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 | DSP | 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. | Git

- 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
- Designed a real-time LabVIEW program which reliably executed deterministic tasks related to control, DSP, & HMI commands
- 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
- Created a temperature feedback controller using an Arduino & LabVIEW which reduced steady state percent error to 3.5%
- Mentored 4 teammates through their mechanical design projects

R&D Engineering Co-Op Intern

Brooks — Jun 2016 – Jan 2017

- Developed MATLAB programs that reduced the time needed to complete the product testing & analysis pipeline by 66%
- 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

United Cerebral Palsy (UCP) & Cal Poly — Jan 2017 – Dec 2017

Designed, built, & tested an underwater stationary cycle for UCP clients using DFMA, DFMEA, & machining techniques (CNC, mill, drill)

Special Olympics Design & Fabrication Project

Special Olympics Southern California — Apr 2017 – Jun 2017

Constructed a wheelchair-accessible award stand for athletes