

# CHRIS PRASANNA

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## 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 to create a Tetris-playing AI agent that was able to clear 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

## 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