Guangzheng "Richard" Liu

| richardliuca@gmail.com | (626) 872-7958 |
| richardliuca.com | Temple City, CA |

Education

University of California, Berkeley   December 2018
Bachelor of Science in Mechanical Engineering   GPA: 3.530

Experiences

Project Intern – Mechanodontics   June – August 2018
- Worked autonomously as a project intern for progressing a dental design project.
- Communicated with vendors to troubleshoot technical problems with 3d printer, and software.
- Quickly CAD-ed concepts or new iterations using SolidWorks and prints out testing prototype on a weekly basis for serving customer.
- Refined the work flow of cleaning up 3d scans of patient's mouth and forming printable models.
- Assisted colleague with using finite element analysis to predict deformation in fabrication process.
- The iteratively improved dental product eased braces installation procedure and significantly improved the user comforts.

Academic

Raibert Hopper Simulations
- Coded Raibert hopping controller to simulate three decoupled linear controllers that allows a robot to maintain continues stable hopping.
- Employed MATLAB's fmincon to optimize each of the three Raibert controllers to maintain a continues hopping while reaching for desire average forward velocity.

Five Axis Robotics Arm
- Designed robot arms component based on mixed of prototyping methods.
- Prioritized structure design to utilize heavily on laser cutting to meet the project time constraint.
- Ensured design compliance to for realizable tolerance per equipment.
- Partner with electrical engineering student to produce circuit design and assembly for the on-board microcontroller, sensor, and actuators.
- Collaboratively programmed in micro python for various IoT functionality such as MQTT, PWM generation, signal processing for inertial sensors.
- Troubleshooted limitation on firmware and library to fulfill the initial project promise.

NACA 5012 Finite Element Analysis
- Scripted solver using MATLAB for solving classic Poisson equation for given 2d mesh.
- Obtained velocity field and the gauge pressure of the fluid around the airfoil, with result validating theory and expectation.

Sensors Test – Experimentation and Measurement
- Our team collected and analyzed data from five different motion sensors, in order to compare the precision amongst the sensors.
- Wrote python script that parsed through several trials of large sample of data and subsequent filtered and fitted the data to expected displacement versus voltage relationship.
- Automatically calculated the uncertainty per machine following Monte Carlo's algorithm.

Skill

Modeling: SolidWorks • Fusion360 • AutoCAD

Ansys AIM • Netfabb • Meshmixer • Cura

Productivity: MS Word • Excel • PowerPoint • Photoshop

Programming: MATLAB • Python • LabVIEW • C • Arduino

Languages: English • Cantonese • Mandarin

Other: Git • GD&T • DFM • FDM & SLA 3D printing • Laser Cutting • Through hole soldering