Nathan Daniel (925-980-7040) • SF Bay Area • danie140@purdue.edu • linkedin.com/in/nathan-daniel-140

EDUCATION

Purdue University, **West Lafayette |** Master of Science (MS), Mechanical Engineering **Class of 2023**

- Concentration in Robotics

Purdue University, **West Lafayette |** Bachelor of Science (BS) Mechanical Engineering **Class of 2022**

INDUSTRY

Mechanical Design Intern **May 2022 – Aug 2022**
Stryker | Weston, FL

- Designed, fabricated, and assembled a 6-link robotic manipulator (modeled after MAKO 4 surgical robot) using Solidworks, encoders and actuators, and used MATLAB for control
- Developed procedure for kinematic calibration of a linear displacement bar to be used in field tuning of the MAKO 4, used in hip and knee replacement surgeries
- Created encoder testing fixture working for Advanced Operations team to assess performance of the magnetic encoders used in robot joints

Robotics & Controls Intern **May 2021 – Aug 2021**
Johnson & Johnson Medtech | Redwood City, CA

- Restructured over 3,000 lines of code to improve simulated case testing for the Monarch Platform, a surgical robot used in minimally invasive bronchoscopy procedures
- Designed open-loop controllers to evaluate straightness of motion and directional accuracy of Monarch's catheter tip in a performance evaluation script used on every Monarch tool produced (~20,000 a year)
- Assisted in Reusable Single Use Device studies to increase the lifespan of Monarch endoscopes and endosheaths from 2 lives to 7 lives

R&D Engineering Intern **May 2019 – Aug 2019**
DeVoro Medical | Fremont, CA

- Fabricated outer catheter puller shafts to be used in Canadian and Argentinian human trials of a WOLF Thrombectomy Device for patients suffering from acute ischemic stroke
- Developed complete manufacturing process of knitting and heat setting a 24-needle nitinol weave to be utilized in production of WOLF Thrombectomy Devices to treat peripheral aneurysms
- Conducted a sealer validation study on a Van Der Stahl Scientific MS-350-NP Medical Device Impulse Pouch Sealer to license its use on 880Medical LLC products

RESEARCH

Undergraduate Research Assistant **Sept 2019 – May 2021**
Purdue University | West Lafayette, IN

- Tested Li-ion batteries to produce safer and high-performance batteries for electric vehicles by modeling thermal characteristics under normal and anomalous operating conditions
- Researched process to quantify muscle forces using motion capture, MATLAB, and electromyography to identify stresses in individual musculoskeletal tissues to protect athletes from injury
- Investigated photocatalytic membranes using TiO_2 as a catalyst to enhance the decomposition of pesticides, fluoropolymers, and pathogens in water systems adjacent to textile manufacturing facilities

TECHNICAL SKILLS

Programming Languages

- Python, Java, C, objective C, C++, Shell, MATLAB, SQL, MongoDB

Integrated Development Environments

- PyCharm, Bluebird, XCode, Glow Script, IntelliJ, LabVIEW, MySQL

CAD Software

- Solidworks, PTC Creo, CATIA, Siemens NX, AutoCADs