ALAN PAPALIA

207 S. Fifth St #101, Champaign, IL 61820 | 502.550.8770 | papalia2@illinois.edu

Education

University of Illinois; Urbana-Champaign, IL May 2019
B.S in Mechanical Engineering GPA: 3.96
Focus in Computer Science

Coursework: Intro to Robotics, Computer Control of Mechanical Systems, Discrete Structures, Data Structures, Numerical Methods, Statistics, Linear Algebra, Calculus, Differential Equations

Work Experience

Collaborative Robotics & Intelligent Systems Institute Summer 2018
Undergraduate NSF Robotics Researcher

- 24 of 200 applicants chosen to be part of the National Science Foundation Robotics Program
- Developed state-of-art machine learning computer vision approach to perform object tracking
- Modified existing pose estimation libraries for occlusion robust tracking
- Built libraries to interface with existing RGB-D cameras for data acquisition
- Implemented autoencoder and Hough Forest framework for pose estimation with 91% accuracy

Ferreira Research Group, University of Illinois Fall 2016-Present
Undergraduate Researcher

- Developed MEAN stack web application for laser cutter motion planning services
- Presented cloud-based machining application to DOD, DMDII, and Fortune 100 strategic partners
- Installed open architecture microcontroller as replacement of stock laser cutter controller

Seurat Technologies Summer 2017
Mechanical Engineering Intern

- Designed and assembled system wide cooling systems for industrial 3D printer prototype
- Performed thermal and fluid dynamic analyses to ensure system cooling parameters were met

HONORS AND AWARDS

Illinois Engineering Achievement Scholarship: Award for academic and extracurricular excellence

Technical Skills

Programming Languages: C++, Python, C, Java, HTML, CSS, Javascript, MATLAB
Software Libraries: ROS, Point Cloud Library, OpenCV, CUDA, Caffe, MEAN Stack
Manufacturing: CNC and Manual Machining, Welding, Soldering
Design: CAD, CFD, FEA, Topology Optimization, PCB Design

Personal Projects

Illini Motorsports Formula SAE: Team Captain

- Led internal operations and systems architecture role of student design team ranking top 5 in the USA
- Orchestrated team-wide systems design of $200,000+ Formula SAE vehicle

Formula SAE: Genetic Algorithm Tire Modeling

- Utilized MATLAB genetic algorithm library to fit tire data to tire coefficients for vehicle simulation model

Formula SAE: Hybrid-Monocoque Chassis Design

- Applied classical laminate theory in structural properties MATLAB tool, resulting in under 7% error
- Performed redesign of composite monocoque chassis with result of 4.6 lb savings on 40 lb design
- Applied structural finite element analysis to validate wear cycle performance of suspension components

Formula SAE: Fuel Tank Design

- Utilized computational fluid dynamics (CFD) driven by accelerometer data to model fuel slosh behavior
- Analyzed simulation results and performed physical testing to identify ideal fuel tank interior geometry