

CAMDEN SHULTZ

Nahant, MA | 617-992-1612 | cshultz3@jhu.edu | CamdenShultz.com

EDUCATION

Johns Hopkins University

Dual Major (GPA 4.0)

BS Electrical Engineering

BS Computer Science

With a concentration in Interactive Systems – Robotics, Graphics, Vision

Minors in Robotics & Applied Mathematics and Statistics

Honors: Johns Hopkins Dean's List for Exceptional Academic Performance (2021)

Baltimore, MD

Expected May 2024

Relevant Courses: Honors Linear Algebra, Digital Systems Fundamentals, Computational Modelling for ECE, Differential Equations & Applications, Discrete Mathematics

TECHNICAL SKILLS AND INTERESTS

Programming Languages, Tools: MATLAB, C, C++, Java, Python

Software, OS: Fusion 360, Git, Linux Systems

Laboratory: CAD-CAM equipment

Personal: Interactive Systems, Machining, Django, JavaScript (Graph.JS, Firebase, Handlebars.js, p5.js)

Projects: Simulated option prices using Black-Scholes-Models (Course – DiffEq); Investigated disease models and population dynamics employing Agent-Based-Models and graph theory for Covid-19.

ENGINEERING ESCAPEDES, PROJECTS, AND EXPERIENCES

UNICEF and The World Bank

Data Analyst and Web Engineer

Baltimore, MD

February 2021 – Present

- Prepared visualizations and analyses of key survey results from 222 territories for public consumption, World Bank officials, UNICEF, and the Johns Hopkins eSchool+ Initiative. Focused on capturing real time-data of current school operations to influence planning efforts.
- Collaborated with a team of 20 to develop internal data-pipelines and comprehensive data management interface to manage both structured and unstructured data of bi-weekly data collection rounds, reducing manual data input time by $\approx 25\%$.
- Managed zero-cost development and deployment of eSchool+'s public facing website for partnerships and collaboration between Johns Hopkins University eSchool+ Initiative, World Bank, and UNICEF; concentrating on opensource technologies including Netlify-CMS and Jekyll collections.

JHU Delivery Robot Team

Sensors Engineer

Baltimore, MD

January 2021 – Present

- Implemented hardware and firmware for sensor systems for autonomous delivery robots; Designed custom made micro-controller PCBs for high bit rate operation of ultrasonic and IR sensors for active obstacle avoidance along with 3 other team members.
- Spearheaded public outreach for company sponsorships and hardware acquisition for sensors subgroup during prototyping stages, resulting in opportunities for reduced hardware and development cost of LiDAR sensors systems by roughly 30%.
- Evaluated feasibility of computer vision techniques regarding landmark detection, increased robot navigation functionality, and mobile compute-power in preliminary design reports; Examined models for traffic light detection and classification with TensorFlow object detection.

Johns Hopkins University, Department of Physics and Astronomy Baltimore, MD
Teaching/Learning Assistant for 171.103 & 171.104 August 2020 – Present

- Led weekly recitation sessions and office hours for Johns Hopkins' calculus based physics courses for mechanics, waves, electricity and magnetism, optics, and atomic physics for ≈ 30 students.

Johns Hopkins University, Carey Business School Baltimore, MD
Classroom Assistant January 2021 – Present

- Provided technical support for 5 graduate level courses offered through the Carey Business School, including on-the-spot debugging, classroom management and recordings/transcriptions.
- Facilitated technical and logistical aspects of JHU's professional orientated negotiation residencies for ≈ 35 students over the course of 2 days.

Higher dimension Fourier Transform Compression Algorithm Research Basel, Switzerland
Researcher January 2019 – January 2020

- Conducted Self-directed, original research investigating applications of fourier transforms in rendering and data storage process for 2D and 3D bodies, resulting in a thesis paper for the IB program.
- Developed tools using Python and the Matplotlib library, JavaScript and Chrome's developer framework to reconstruct detailed sets of images, graphs, and animations; illustrating technical feasibility of utilizing fourier algorithms, in comparison to traditional compression techniques.
- Published results demonstrating complex 3D objects could be compressed to roughly 28% of original sizes and reconstructed with a similarity index score always greater than 88%.

Novartis Pharma, Bio-Future Downstream Purification Basel, Switzerland
Technical Intern – Advanced Process & Manufacturing Technologies July 2018 – August 2018

- Performed research for Novartis' BioFuture group, concentrated on downstream purification (filtration studies) for filtration on a scale of 50 microns from perfusion cell culture harvests.
- Completed filtration experiments and evaluated data of 8 models to inform filter choices for a novel protein harvest method used in continuous cell culture manufacturing schemes.
- Collaborated with research scientists and senior technical leaders to focus laboratory efforts and refine data presentation for results summary.

VOLUNTEER AND LEADERSHIP ACTIVITIES

Johns Hopkins Robotics Club Basel, Switzerland
Executive Board – Secretary April 2021 – Present

- Facilitate communication between club members and Laboratory for Computational Sensing and Robotics (LCSR), our university sponsor.
- Organize and prepare club documents, including logistics of the Robotorium (our workshop space) and access to LCSR facilities.

Harvard Coronavirus Visualization Team (COVID-19) Cambridge, MA
Core Leadership – Projects Technical Stacks & Project Lead – Visualizations April 2020 – April 2021

- Coordinated and oversaw employment of required technical frameworks for CVT's vast array of ongoing projects and research teams. CVT supports over 600 members, 20 projects, and 20 publications as of writing.
- Spearheaded development of CVT's mobile application to increase public outreach and acknowledgement of CVT's research.
- Conceptualized data driven policy proposals for government entities on impact motivated initiatives.

Modest Notes Basel, Switzerland
Co-Founder and Lead Developer March 2020 – June 2020

- Designed "Modest Notes", an online study and tutoring platform designed to facilitate student success in the international baccalaureate program and other high level academic programs.
- Curated materials including succinct, yet detailed notes for 15 advanced courses, practice problems, and other revision materials; Centered on a mission to interrupt declining grade-averages of the IB program and set new standards for upcoming IB graduates.