

Duncan Mazza

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Skills

- ▶ Proficient: Python, C#, C, MATLAB | Git, OpenCV, Unity, LaTeX
- ▶ Familiar: C++, SystemVerilog, Mathematica | ROS, Pytorch, PyQt, KiCad, electrical debugging tools

Education: Olin College of Engineering (4.0 GPA)

- ▶ Candidate for B.Sc. in Electrical and Computer Engineering Expected graduation: May '22
- ▶ Key courses (including current): Computer Architecture, Data Structures and Algorithms, Engineering Systems Analysis w/ Signals, Principles of Wireless Communication, Discrete Mathematics, Software Systems, Machine Learning, User Oriented Collaborative Design, Affordable Design and Entrepreneurship, Introduction to Sensors Instrumentation and Measurement.

Internships & Research

- ▶ **PTC – Software Engineering and Product Management Intern** June '21 – Aug '21
 - ▶ Advanced feasibility and desirability validation efforts for team developing a new A.R. product:
 - ▶ Improved efficiency of 3D A.R. content authoring and manipulation for end-users by adding new mobile app features (implemented in C#) – most notably, by designing and enabling a passive handheld object to be used as an input device.
 - ▶ Utilized an internal SDK to implement the feature as a modular component.
 - ▶ Tested authoring solution with stakeholders during a customer site visit and solicited feedback.
 - ▶ With a peer intern, conducted subject matter expert interviews and user research at customer site visit; synthesized findings into a prioritized set of product requirements for A.R. content authoring.
 - ▶ Presented work to immediate team and to an audience spanning the whole A.R. group (including executives).
- ▶ **Olin College Crowdsourcing and Machine Learning Lab – Student Researcher** SP2021 & Sep 2021 - Present
 - ▶ Advancing work on offline graph optimization for pose estimation of fiducial markers. Focusing on tuning the optimization and understanding how to infer accuracy absent ground truth data.
 - ▶ Contributing code (Python using g2opy library) and documenting findings and relevant mathematical background.
- ▶ **Olin Satellite + Spectrum Technology & Policy Group – Textbook Contributor** SP2021 & Sep 2021 - Present
 - ▶ Contributing to textbook on wireless communications to be used by the Principles of Wireless Communications (PWC) class (continuation of my PWC final project).
 - ▶ Covering topics such as OFDM and MIMO. Recipient of funds from the Massachusetts Space Grant (Fall 2021).
- ▶ **PTC – Research and Development Intern** Aug '20 – Dec '20
 - ▶ Explored the combination of a cloud-based computer vision technology with PTC A.R. tracking capabilities through vendor research, academic literature review, and creating interactive prototypes using Unity and C# that compared vendors' technology and different algorithms for integration of their technology.
 - ▶ Presented quantitative measures and prototype demonstrations showing the efficacy of the algorithms integrating incorporating the vision capability.
 - ▶ Technical skills used: 3D data processing and visualization; Bayesian statistics; and algorithm design and analysis.
- ▶ **Kuva Systems – Software Engineering Intern** June '19 - August '19
 - ▶ Key developer for PyQt-powered GUI used internally by engineers (including for live product demos) for processing multispectral infrared images with the purpose of detecting methane.
 - ▶ Implemented data structures and algorithms in the backend; added custom data visualization features; wrote unit tests.
 - ▶ Mathematically modeled environmental effects on the measured signal, manufactured datasets for validating the model, and authored a detailed report.

Other Experience

- ▶ **Data Structures and Algorithms – Student Teacher** Feb '21 – May '21
 - ▶ Co-designed and taught undergraduate-level course at Olin College covering foundational data structures, algorithms design techniques (e.g., dynamic programming), and relevant mathematical theory (e.g., amortized analysis). Developed and delivered lectures, prepared class assignments, and advised students in projects.
 - ▶ Worked with other student teachers, course assistants, and faculty advisors to continuously improve the students' experience through solicitation of and reflection upon feedback.
- ▶ **Software Design – Course Assistant** Aug '20 – Dec '20
 - ▶ Live-assisted students on topics in Python development and best practices in software engineering (e.g., code documentation). Reviewed students' code, graded homework submissions, and supplied detailed feedback.
- ▶ **248 Builders (student V.C. cohort) – Founding Partner** Jan '20 – June '21
 - ▶ Co-founded 248 Builders, an inter-college student V.C. cohort that organizes events for and brings funding into the BOW entrepreneurial community through an investor partnership. Engaged with responsibilities spanning strategic planning, deal evaluation, and leading public A.M.A. events. With rest of cohort, led decision for a \$25k investment.