Daniel Pitzele

djpitzele.github.io | linkedin.com/in/daniel-pitzele | dpitzele@gmail.com

Education

University of Maryland College Park, MD

B.S. in Computer Science, Minor in Philosophy *Aug. 2022 – Present*

- Senior expecting to graduate May 2026, GPA: 3.977
- Activities: Gemstone Research Honors Program, various research projects, President of Men's Crew Team
- Relevant Coursework: Computer Vision, Computational Photography, Multimodal Deep Learning, Machine Learning for Physical Sensing and Perception, Theory of Computation, Algorithms, etc.

Research/Projects

3D Trace Generation | *with Dr. Jia-Bin Huang* August 2025 - Present

- Developed a framework for enabling zero-shot 3D trace generation
- Trained low-level policy model to fit robot rotations/gripper motions to generated 3D trace
- Conducted extensive review of literature in the area of 2D to 3D trace lifting
- Targeting conference paper submission in early 2026

Fourier Ptychography for Microscopy | *with Dr. Christopher Metzler* April 2025 - Present

- Implemented machine learning techniques to improve ptychography reconstruction results
- Assembled a low-cost fourier ptychography setup using a Raspberry Pi and 3D printed parts
- Utilized programatic direction of our ptychography setup to capture raw data

Color Vision Simulation | *with Dr. Giuliano Scarcelli* November 2023 - Present

- Worked with a team of undergraduates to develop a simulation to visualize what a person with CVD sees
- Standardized linear algebra transformations for light waves into various color spaces
- Extended the simulation to apply a potential color correcting solution to the image
- Presented a poster at University of Maryland's Undergraduate Research Day 2025

Autonomous Audio Navigation in Caves October 2025 - December 2025

- Designed a machine learning model for autonomous navigation using only audio signals
- Created a cave generation and audio propagation pipeline for gathering training examples
- Performed quantitative evaluations of our model and produced a conference-style write-up

Geolocatability Classifier October 2025 - December 2025

- Created a series of machine learning models to estimate the ability of large VLMs to geolocate an image
- Gathered a dataset of SOTA VLMs' attempts to guess the location of an image
- Evaluated various adversarial filters for anti-geolocation purposes
- Performed quantitative evaluations of our models and produced a conference-style write-up

Machine Learning Colorization Engine May 2025

- Implemented a machine learning model for colorization of black-and-white images using a U-Net architecture
- Trained the model using a combination of various open-source datasets
- Calibrated various model versions to work in cases of landscapes, people, and general images

Exercise Games for Seniors January 2024 - May 2024

- Developed a lower-body focused exercise game for seniors in Unity using C# as part of research under a professor
- Completed a literature review on the subject to determine good exercises and formats to use
- Designed and implemented a fitness video game with strict technological requirements and minimal oversight
- Utilized various computer vision techniques and libraries for pose estimation and tracking

Wikimedia Anti-Disinformation Map August 2023 – February 2024

- Worked on a team of undergraduates to develop a React web app for a research project under a professor
- Parsed, analyzed, and visualized data sets representing hundreds of anti-disinformation projects
- Corresponded with both a professor and contacts at Wikimedia to edit the site as needed
- Used GitHub actions to asynchronously update and redeploy the website at will

Work Experience

Software Engineer Intern June 2025 – August 2025
Capital One *McLean, VA*

- Implemented core frontend features of a VPN split tunnel provisioning tool in ReactJS to improve user experience
- Developed a backend API using Node.js and FastAPI, integrating both internal and external APIs
- Collaborated with 3 other interns to build a full-stack solution leveraging AWS services (ECS, S3, Load Balancer), enhancing application performance and reliability in a production-grade environment

Software Engineer Intern June 2024 – August 2024
Strata Decision Technology *Chicago, IL*

- Created a frontend interface using Typescript and React to be used for a microservice deployed through AWS
- Developed a RESTful API backend using .NET, C#, and Postgres/SQL
- Integrated the new frontend and backend for full stack development using an Agile methodology

President November 2022 – November 2023
Maryland Men's Crew *College Park, MD*

- Directly managed practice, competition, logistics, and travel of a 30-person rowing team
- Served as a liaison between the team, the university, other local rowing organizations, and alumni
- Allocated and executed the spending of a $25,000/year team budget

Human Resources Intern June 2023 – August 2023
Titan Security *Chicago, IL*

- Worked directly and indirectly with candidates and their documents
- Processed/entered data in Microsoft Excel and various other office platforms
- Assisted candidates with their application/onboarding process

Information Technology Intern February 2022 - June 2022
Relativity *Chicago, IL*

- Assisted users directly using critical thinking and problem-solving skills
- Handled the storage, distribution, and inventory of company devices
- Earned the Google IT Support Specialization Certification

Technical Skills

Languages: Python, Java, Matlab, JavaScript/Typescript, C#, C/C++, OCaml, Rust, HTML/CSS, SQL
Frameworks/Libraries: NumPy, PyTorch, React, OpenCV, Node.js, FastAPI, Material UI
Developer Tools: Git/GitHub, AWS, VS Code, Docker, Visual Studio, Octopus, Google Cloud Platform, GitKraken, Swagger
Misc. Technologies: LaTeX, Microsoft Word, Excel, PowerPoint