Phone number, Email available upon request
github.com/aday913

ALEXANDER DAY

EDUCATION

PhD, Biomedical Engineering — *University of Arizona: Tucson, AZ*

August 2018 - January 2022 (Outstanding Graduate Student 2021-2022)

BS, Biomedical Engineering — *University of Arizona: Tucson, AZ*

August 2018 - January 2022 (GPA 3.89, Magna Cum Laude)

EXPERIENCE

Clinical Imaging Data Manager — *Genentech: San Francisco, CA*

March 2022 - PRESENT

- Facilitated data handling, curation, and quality control for the Clinical Imaging Group, enhancing data ingestion and usage efficiency for imaging scientists.
- Developed data analysis and data curation/QC applications, doubling data ingestion speed year over year through automation.
- Utilized Unix systems/command line, Python programming, and cloud data storage extensively.

Graduate Research Assistant — *University of Arizona Department of Biomedical Engineering: Tucson, AZ*

August 2018 - January 2022

- Developed point-of-care diagnostic devices for rapid bacterial, SARS-CoV-2, microRNA, and natural killer cell detection and quantification through novel biosensor development.
- Built machine learning and image/video analysis programs for automated particle counting and data analysis.
- Managed a team of undergraduate and master's students; presented research at lab meetings, seminars, and conferences.

Graduate Teaching Assistant — *University of Arizona Department of Biomedical Engineering: Tucson, AZ*

August 2021 - December 2021

- Led laboratory sections on biosensor development for undergraduate and graduate students

Research Engineering Intern — *Roche Tissue Diagnostics (Formerly Ventana Medical Systems): Tucson, AZ*

May 2017 - August 2017

- Created Python scripts and characterized next-generation tissue staining support systems for integration into new instruments.

SKILLS

- **Programming**: Python (Scikit-Learn, PyTorch, Scipy, OpenCV, Matplotlib, SQLite3, Jupyter Notebook), Arduino, Matlab, Git/GitHub, Raspberry Pi, Postman, API communication, Machine learning (classification, regression, model evaluation, etc.), Docker containerization, CI/CD, Unix systems, AI tools (Gemini, GPT, Ollama, Copilot, etc.), Golang, Bash scripting
- **Laboratory**: PCR, Loop-mediated isothermal amplification (LAMP), antibody-nanoparticle conjugation, gel electrophoresis, electrical breadboarding, device fabrication, microfluidics, cell culturing, design of experiments
- **Soft Skills**: Public speaking, report/publication writing, mentorship, management, teaching, collaborative and independent work

Publications*

- Zenhausern, R., **Day, A. S.**, Safavinia, B., et al. "Natural killer cell detection, quantification, and subpopulation identification on paper microfluidic cell chromatography using smartphone-based machine learning classification," Biosensors and Bioelectronics, 2022.
- **Day, A. S.**, Ulep, T.-H., Budiman, E., et al. "Contamination-resistant, rapid emulsion-based isothermal nucleic acid amplification with Mie-scatter inspired light scatter analysis for bacterial identification," Scientific Reports, 2021.
- **Day, A. S.**, Ulep, T.-H., Safavinia, B., et al. "Emulsion-based Isothermal Nucleic Acid Amplification for Rapid SARS-CoV-2 Detection via Angle-dependent Light Scatter Analysis," Biosensors and Bioelectronics, 2021.
- Ulep, T.-H., **Day, A. S.**, Sosnowski, K., et al. "Interfacial Effect-based Quantification of Droplet Isothermal Nucleic Acid Amplification for Bacterial Infection," Scientific Reports, 2019.

**Additional publications available upon request*

Personal Projects

- **Concert Finder Application**: Developed a Python application using Docker, the Spotify API, and the SeatGeek API to find and report upcoming concerts for artists in Spotify playlists via a Discord bot.
- **Gemini Discord Bot**: Created a Discord bot integrated with the Gemini API for AI-generated answers and threaded conversations, enhancing user interaction.
- **CrewAI Research Bot**: Developed an application with CrewAI to create AI agents that search for research papers on PubMed and Google Scholar, summarizing findings in accessible language.

Volunteer Experience

- **Graduate Mentor** (University of Arizona Department of Biomedical Engineering, 2019-2021)
- **Grant Reviewer** (University of Arizona Graduate Professional Student Council, 2019-2021)
- **KEYS (Keep Engaging Youth in Science) Mentor** (University of Arizona BIO5 Institute, 2019)
- **Biomedical Engineering Society Club Officer** (University of Arizona, 2016-2018)

Awards

- Outstanding Graduate Student: Department of Biomedical Engineering (2021-2022)
- Scholarship Student: Wildcat Excellence Award
- Award-winning Senior Design Project: College of Engineering Design Day (2018)
- GPSC Research and Project (ReAP) Grant Winner (September 2019 & April 2021)