# Jenna M. Kline

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## OBJECTIVE

Seeking computer science research internship focused on autonomous, unmanned aerial systems and remote sensing.

## EDUCATION

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|---|---|---|
| 2021 - present | **PhD Computer Science & Engineering** at **The Ohio State University** | GPA: **3.8/4.0** |

Expected Graduation: May 2026
Advisors: Dr. Christopher Stewart & Dr. Tanya Berger-Wolf
Major: Software Systems | Minors: Artificial Intelligence & Imageomics
Research Interests: edge computing, autonomous navigation, UAVs

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|---|---|---|
| 2014 - 2018 | **B.S. Industrial Engineering** *Cum Laude* at **The Ohio State University** | GPA: **3.6/4.0** |

Honors in Integrated Business and Engineering (IBE)
Major: Industrial & Systems Engineering, Data Analytics & Optimization Specialization
Minor: Business
Activities: Big Data Analytics Association, Buckeye Undergraduate Consulting Club, SWE

## RESEARCH

**Edge Architecture and Autonomous UAVs**

My research is focused on building resilient edge architecture and intelligent navigation models for autonomous, unmanned aerial vehicles (AUAVs) for applications in ecology and agriculture. AUAVs use software to decide where to fly, when to collect data, and when to end a mission without humans in the loop. Edge architecture optimized for AUAVs brings compute close to the data source, enabling real-time analysis and reducing latency, and efficiently manages the unpredictable workloads generated by autonomous navigation models.

**Publications & Talks:**

**Jenna M. Kline** (2022). "PhD Forum: Edge Computing for Software-Defined Cartography". In: *The Seventh ACM/IEEE Symposium on Edge Computing (SEC)*. Seattle, WA: ACM.

**Jenna M Kline**, Tanya Berger-Wolf, et al. (2023). "Towards Autonomic Computing for In Situ Imageomics". In: *Conditional acceptance, 4th IEEE International Conference on Autonomic Computing and Self-Organizing Systems - ACSOS 2023*.

**Jenna M. Kline** (2023a). "Poster: Autonomous UAV Missions for Studying Wildlife Behavior: A Case Study for the Individual Identification of Zebras". In: *2023 Midwest Machine Learning Symposium*. Chicago, IL: MMLS.

– (2023b). "Poster: Individual Identification of Zebras with Autonomous UAV Swarms". In: *2023 CRA-WP Grad Cohort for Women*. San Francisco, CA: CRA-WP.

– (2023c). "Talk: Interdisciplinary Applications for Autonomous Unmanned Aerial Vehicles". In: *Ohio Celebration of Women in Computing 2023*. Huron, OH: OCWiC. URL: https://ocwic23.ocwic.org/program/.

Kholiavchenko, Maksim, **Jenna M Kline**, et al. (2023). "KABR: In-Situ Dataset for Kenyan Animal Behavior Recognition from Drone Videos". In: *In submission*.

## Skills

|  | Programming |  | Product Management |  | Data Analytics |  |
|---|---|---|---|---|---|---|
| Python | ▰▰▰▰▱ | Project Management | ▰▰▰▰▱ | Pandas | ▰▰▰▰▱ |
| Machine Learning | ▰▰▰▱▱ | Agile | ▰▰▰▰▱ | Databases | ▰▰▰▰▱ |
| Computer Vision | ▰▰▰▰▱ | JIRA | ▰▰▰▰▱ | MicroStrategy | ▰▰▰▰▱ |
| PyTorch | ▰▰▰▰▱ | UX/UI | ▰▰▰▱▱ | PowerBI | ▰▰▰▱▱ |
| High Performance Computing | ▰▰▰▰▱ | Salesforce | ▰▰▱▱▱ | Tableau | ▰▰▱▱▱ |
| Git | ▰▰▰▱▱ | Market Research | ▰▰▱▱▱ | SQL | ▰▰▰▰▱ |
| Docker | ▰▰▱▱▱ | | | | |
| JavaScript | ▰▰▱▱▱ | | | | |

## Research Projects

**Imageomics Kenya Animal Behavior Project**      Link to article      August 2022 - present

Piloted UAV missions at the Mpala Research Centre in Kenya as part of the Experiential Introduction to Imageomics course to study the behavior of zebras and giraffes. Currently building an end-to-end pipeline that will automatically identify individual animals and behaviors from the drone videos using computer vision and machine learning techniques.

**ICICLE UAV Simulator Microservice for Digital Agriculture**    Link to project page    August 2022 - present

Built an edge computing simulator for waypoint UAV swarm missions using Kubernetes and Python scripts.

**Honors Integrated Business and Engineering Challenge at CERN**      Link to article    Jan 2016 - May 2016

Collaborated with a team of engineering and business students to create a prototype and present a business plan to solve the problem of providing affordable, safe water to the global community; Spent two weeks working at CERN, the European Council for Nuclear Research, in Switzerland at the IdeaSquare prototyping facility collaborating with CERN's Knowledge Transfer team and built a working water purification prototype.

## Employment History

**Los Alamos National Laboratory, Supercomputer Institute Graduate Intern**      May 2023 - Aug 2023

– Completed two-week high performance computing (HPC) boot camp building, configuring, and testing a HPC compute cluster from scratch
– Research project analyzing HPC filesystems to describe and predict administration requirements, using Grand Unified File-Index (GUFI), SQL, and Python

**The Ohio State University, Graduate Teaching Assistant**      Aug 2021 - Dec 2022

*CSE 2111: Modeling and Problem Solving with Spreadsheets and Databases*
Lecture topics include spreadsheet and database modeling, programming concepts, and techniques to solve business problems

*CSE 3244: Data Management in the Cloud*
Lecture topics include systematic organization of data on cloud computing architectures, basic indexing techniques, including B-tree and hash-based indexing, fundamentals of query optimization, including access path selection and cardinality estimation, full and partial replication and data partitioning and distributed task scheduling.

**Bath & Body Works, Data Service Product Owner**      Jan 2019 - Aug 2021

– Led team of developers, UX designers, architects, and functional experts to design, build, and implement interactive dashboard to enable store, regional, and district managers to track and manage their labor for North American stores
– Developed cross-functional relationships with stores, finance, human resources, and merchandising teams to build reports and dashboards in MicroStrategy to provide actionable information to leadership and optimize internal processes
– Coordinated with database administrators to reduce report runtime by optimizing database schema
– Served on the Summer Intern Experience Taskforce to organize events for interns to enhance their experience and provide opportunities for professional development

**L Brands Mast Global, Supply Chain Applications Intern**      May 2018 - Aug 2018

– Gathered sales and inventory data from 35 Ohio stores, during Spring 2018, for merchandise from Oracle and MicroStrategy and compiled the data into a SQL database, and used Python to analyze the data by calculating and comparing the sell through for each size by store and tier

**The Ohio State Office of Research, ADVANCE Student Employee**      Aug 2017 - Apr 2018

– Supported the Office of Research ADVANCE program, aimed at increasing the representation, advancement, and recruitment of women faculty in STEM careers

**Georgia Pacific, Research and Development Engineer Intern**      May 2017 - Aug 2017

– Completed data analytics project by identifying locations to conduct the study, monitoring raw data in SQL, writing code in R to analyze the data, and visualizing data insights with Tableau, enabling stakeholders to make informed decisions

**General Electric, Engineering Product Management Intern**      Jan 2016 - Jun 2016

– Increased the availability of top-selling products by 80% by holding internal supply chain and manufacturing teams accountable to their production commitments, which drove a 4X increase in sales, using Salesforce and SAP

## PROFESSIONAL ORGANIZATIONS & VOLUNTEERING

**ACM-W, Member**      Awarded Grace Hopper Celebration scholarship for graduate students in 2022 & 2023
**Code I/O, Volunteer**      Volunteer at free coding camp for students aged 10-15

Last updated: July 7, 2023