Angela Zhu

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Research Interests — Computer Vision and Machine Learning; Computational Sustainability; Public Interest Technology

Education

University of Massachusetts Amherst, *M.S. Computer Science* **2023 - 2025**
Coursework: Computer Vision, Machine Learning, Fixing Social Media, Research Methods, Artificial Intelligence

University of Illinois at Urbana-Champaign, *B.S. Mathematics, Minor in Computer Science* **2014 - 2018**

Research Experience

University of Massachusetts Amherst **Aug 2024 – Dec 2024**
Research Assistant/Independent Study *Amherst, MA*

Few Shot Range Estimation

- Contributed to paper by creating visualizations of species ranges over varying context points and text inputs
- Productionized paper related code and turned into a visualization Jupyter Notebook and demonstration on Hugging Face
- Authored a follow-up paper (not peer reviewed) investigating model performance for top and bottom performing species, identifying biases favoring North American and European species, and assessing accuracy on species based on range size, migratory behavior and coastal species.
- Explored the impact of habitat and range text on model outputs, identifying critical factors influencing prediction accuracy and proposing hypotheses for model improvement.

Center for Data Science at UMass Amherst **May 2024 – Aug 2024**
Research Intern - Data Science for the Common Good Fellow *Amherst, MA*

GeoModel and iNaturalist

- Built a human in the loop platform for experts to collect expert species species data and improve species distribution model accuracy in collaboration with computer vision faculty and researchers and iNaturalist engineers
- Developed and deployed (Docker) a web application that enables experts to annotate species range maps using predictions from the SINR GeoModel- ML-based range prediction model to refine species distributions
- Designed interactive mapping interface (React JS, Python) and database to store predictions and annotations
- Conducted 5 successful user studies with stakeholders to get feedback on the platform and identified future research directions

Publications and Presentations

- First Author of "**A Study of a Species Distribution Model**" in progress 2025, in collaboration with C. Lange and M. Hamilton.
- Collaborated on "**Few-Shot Species Range Estimation**" paper, Acknowledgment (submitted to ICLR 2025)
- Poster presenter of work titled "**iNatator: Obtaining Expert Feedback on Species Ranges**" at New England Computer Vision Workshop. Yale University, New Haven, CT, 2024, in collaboration with S. Pogorelov, O. Yilmazel, P. Navarrete, V. Partridge

Industry Experience

Microsoft **2018 – 2023**
Software Engineer II *Redmond, WA*

Backend engineer for Substrate Microsoft 365

- SPARTAN team within data service organization for Office products worked on projects that the VP wanted to accelerate

- Experienced technical lead and mentor for engineering projects. Projects I worked on include:
- Building a chaos engineering platform to test the resiliency of internal services
- Built a rate limiting service for M365 data ingestion pipeline - billions of updates per day
- Defined REST APIs and written client SDKs for products.
- Shipping & deploying code to production in large ecosystem. Built, deployed, tested and packaged code
- Designed 30 day engineering onboarding curriculum for the Substrate organization
- Onboarded 15+ new hires, individually mentored 5 engineers
- Chosen to speak at internal Microsoft Aspire Conference: Team Switch Panel alongside managers to 50 employees

Industry Experience

Expedia Group **May 2017 – Aug 2017**
Hotwire - Data Science Intern *Seattle, WA*

Added Neighborhood Ranking Feature to Hotel Search Algorithm

- Improved Hotwire's hotel sorting algorithm by adding a feature that measures popularity of neighborhoods based on search criteria. Used Hive to extract features from click data, Python for feature engineering and boosted decision trees (BDT) to train the model
- Increased overall ranking quality (NDCG) by 3%

Academic Activities

New England Computer Vision Workshop **2024**
CRA-WP Grad Cohort Conference **2024**
Grace Hopper Conference **2019, 2020, 2022**

Skills

Software Tools Git, Visual Studio, Azure DevOps, CICD
Languages Python, C# (Familiar: Java, C++, SQL)
Cloud UMass Unity Cluster, AWS
Testing Pytest, MSTest, xUnit

Volunteering and Community Engagement

UMass Birdwatching Club **2023-Present**
Microsoft **2018-2023**

- Led and organized knowledge sharing and team building activities: led How-To talks, organized bookclubs and volunteering events

Grassroots Ecology Nonprofit **2020-2023**

- Habitat restoration and maintained natural ecosystems