Rangel Daroya

rdaroya@umass.edu || Amherst, MA, USA || rangeldaroya.github.io

EDUCATION

University of Massachusetts, Amherst, MA, USA
Ph.D. Computer Science (GPA: 4.00/4.00), September 2022 – September 2027 (expected)

- Exploring and understanding relationships between computer vision tasks, including multi-task and transfer learning, to effectively solve computer vision problems across different modalities.
- Developing improved data representations and embeddings to drive robust, generalizable models for real-world applications in environmental and scientific domains. [*Advisor: Subhransu Maji*]

University of the Philippines, Quezon City, Philippines
M.S. Electrical Engineering (GPA: 3.95/4.00), January 18 – July 2020

- Focused on 3D reconstruction of objects and buildings (Thesis: *"REIN: Flexible mesh generation from point clouds"* [paper])

B.S. Electronics and Communications Engineering (GPA: 3.89/4.00), June 2012 – June 2017

- Project: *"NDVI image extraction of an agricultural land using an autonomous quadcopter with a filter-modified camera"* [paper]
- Summa Cum Laude & Top 2 in the entire university with more than 3,000 students.

SELECTED PUBLICATIONS (see Google Scholar for full list of publications)

1. **Rangel Daroya**, Elijah Cole, Oisin Mac Aodha, Grant Van Horn, and Subhransu Maji. WildSAT: Learning Satellite Image Representations from Wildlife Observations. In *IEEE/CVF International Conference on Computer Vision (ICCV)*, 2025. [paper]
2. **Rangel Daroya**, Luisa Vieira Lucchese, Travis Simmons, Punwath Prum, Tamlin Pavelsky, John Gardner, Colin Gleason, and Subhransu Maji. Improving Satellite Imagery Masking using Multi-task and Transfer Learning. In *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)*, 2025. [paper]
3. **Rangel Daroya**, Aaron Sun, and Subhransu Maji. Task2Box: Box Embeddings for Modeling Asymmetric Task Relationships. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 28827-28837, 2024. [page][paper]. Highlight (11.9% of accepted papers)

WORK EXPERIENCE

University of Massachusetts, Amherst, MA, USA
Research Assistant, September 2022 – Present

- Using ML and computer vision to develop multispectral satellite data representations for modeling water quality and sediment movements in Earth's rivers

Dolby Laboratories, San Francisco, CA, USA
Ph.D. Research Intern, May 2024 – August 2024

- Collaborated Dr. Andrea Fanelli, and Deepak Chandran on exploring task representations to improve performance and data efficiency of machine learning models. Resulted in a published paper in CVPRW 2025.

Thinking Machines Data Science, Taguig, Philippines [https://thinkingmachin.es/]
Team Lead & Machine Learning Researcher, February 2020 – January 2022

- Created and delivered a model for predicting facility utilization of a telecommunications company with >80% accuracy. This resulted in a signed project worth $1-2 million.
- Developed cloud-based web/data analytics applications by performing backend (primary) and DevOps roles for an investment firm with >$300 billion in assets under management. Developed primarily using Python, FastAPI, Red Hat OpenShift, Amazon Elastic Kubernetes Service, Elasticsearch, Kibana, Grafana, RedisGraph, PostgreSQL, Dagster, and CloudBees Jenkins.

University of the Philippines, Quezon City, Philippines
University Researcher III, May 2018 – January 2020

- Conducted research for a Philippine California Advanced Research Institutes (PCARI) project entitled *"AIRSCAN:* Collaborative *Aerial Robotics in Large-Scale Urban Infrastructure Management"* in collaboration with University of California Berkeley
- Proposed and implemented algorithms for 3D reconstruction, resulting in greater than 80% improvement to the surface reconstruction approach compared to baseline classical algorithms. This also resulted in the publication of a research paper.
- Designed and executed a customized algorithm for 3D semantic building map augmentation and image object detection for industry partners. This work resulted in a patent submission.

TEACHING EXPERIENCE

University of the Philippines, Quezon City, Philippines
Senior Lecturer, August 2021 – August 2022
Lecturer 2, January 2018 – July 2021

- Taught and organized undergraduate courses on circuit design, telecommunications, and MATLAB/Python programming.

De La Salle University, Manila, Philippines
Lecturer, March 2022 – August 2022

- Taught and organized undergraduate courses on energy conversion, AC/DC motor operation, and machine learning basics.

HONORS AND AWARDS

- PhD Portfolio Distinction from University of Massachusetts, Amherst (2024)

    - Awarded to select PhD students meeting a high standard of completion, voted by faculty
- Paul Utgoff Memorial Graduate Scholarship in Machine Learning from University of Massachusetts, Amherst (2023)
    - Scholarship awarded to a first-year graduate student in Machine Learning
- CVPR 2024 Travel Grant for diversity, equity, and inclusion (DEI) (2024)
- Oblation Scholar at University of the Philippines (2012-2017)
    - Award given to the top 50 admission scores out of more than 60,000 applicants in the Philippines
- Merit Scholarship from the Philippine Department of Science and Technology (2012-2017)
- University Scholar at University of the Philippines (2012-2017)

PROFESSIONAL ACTIVITIES

- Co-organizer of Machine Learning and Friends Lunch (MLFL) at University of Massachusetts, Amherst (2024 – present) [page]
    - MLFL is a weekly interactive forum at the university where we invite researchers to talk about their field of expertise
- Ph.D. Application Reviewer at University of Massachusetts, Amherst (2023, 2024)
- Reviewer for IJCV 2024, ECCV 2024, CVPR 2025, ICCV 2025, NeurIPS 2025, AAAI 2026

SKILLS

- Programming Languages: Python, MATLAB, C/C++
- Machine Learning: PyTorch, Tensorflow, scikit-learn, NumPy, Pandas, SciPy
- Others: Git, Docker, Latex