

# Rangel Daroya

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## EDUCATION

**University of Massachusetts**, Amherst, MA, USA

Ph.D. Computer Science (GPA: 4.00/4.00), September 2022 – September 2028 (expected)

- Exploring and understanding relationships between computer vision tasks, including multi-task and transfer learning, to effectively solve computer vision problems [*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 ([Google Scholar](#))

1. **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)
2. Lucchese, Luisa Vieira, **Rangel Daroya**, Travis Simmons, Punwath Prum, Subhransu Maji, Tamlin Pavelsky, Colin Gleason, and John Gardner. Modeling suspended sediment concentration using artificial neural networks, an effort towards global sediment flux observations in rivers from space. In *Copernicus Meetings*, No. EGU24-6548, 2024.
3. **Rangel Daroya\***, Aaron Sun\*, and Subhransu Maji. COSE: A Consistency-Sensitivity Metric for Saliency on Image Classification. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops*, pages 149-158, 2023. [[page](#)][[paper](#)]

## 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 with Dr. Gang Hua, Dr. Andrea Fanelli, and Deepak Chandran on exploring task representations to improve performance and efficiency of machine learning models

**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 undergraduate courses on circuit design and analysis, telecommunications, and MATLAB/Python programming.

**De La Salle University**, Manila, Philippines

Lecturer, March 2022 – August 2022

- Taught 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
- CVPR 2024 Travel Grant for diversity, equity, and inclusion (DEI)
- 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
- 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)
- Reviewer for International Journal of Computer Vision (IJCV), 2024
- Reviewer for European Conference on Computer Vision (ECCV), 2024

## **SKILLS**

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