

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 – May 2027 (expected)

- Exploring and understanding relationships between computer vision tasks, including multi-task and transfer learning, to effectively solve computer vision problems in multi-modal applications (e.g., text, images).
- Developing improved data representations and embeddings to drive robust, generalizable models for large-scale 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 2018 – 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

- Summa Cum Laude & Top 2 in the entire university (3,000+ students).

PUBLICATIONS (Full updated list: [Google Scholar](https://scholar.google.com/citations?user=rdaroya))

1. **SuperRevolution: Fine-Scale Rivers from Coarse Temporal Satellite Imagery** [paper]
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2026. (to appear)
[Rangel Daroya](#), Subhransu Maji.
2. **RiverScope: High-Resolution River Masking Dataset** [paper]
Association for the Advancement of Artificial Intelligence (AAAI), 2026. (to appear)
[Rangel Daroya](#), Taylor Rowley, Jonathan Flores, Elisa Friedmann, Fiona Bennitt, Heejin An, Travis Simmons, Marissa Jean Hughes, Camryn Kluetmeier, Solomon Kica, J Daniel Vélez, Sarah Esenther, Thomas Howard, Yanqi Ye, Audrey Turcotte, Colin Gleason, Subhransu Maji.
3. **WildSAT: Learning Satellite Image Representations from Wildlife Observations** [paper]
IEEE/CVF International Conference on Computer Vision (ICCV), 2025. ([Spotlight Talk, CV4E Workshop @ ICCV](#))
[Rangel Daroya](#), Elijah Cole, Oisín Mac Aodha, Grant Van Horn, Subhransu Maji
4. **Improving Satellite Imagery Masking using Multi-task and Transfer Learning** [paper]
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), 2025.
[Rangel Daroya](#), Luisa Lucchese, Travis Simmons, Punwath Prum, Tamlin Pavelsky, John Gardner, Colin Gleason, Subhransu Maji.
5. **T-SAM: Transductive Learning for Segment Anything Model** [paper]
IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2025.
[Rangel Daroya](#), Deepak Chandran, Subhransu Maji, Andrea Fanelli.
6. **Task2Box: Box Embeddings for Modeling Asymmetric Task Relationships** [paper]
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024. ([Highlight, 11.9% of CVPR24 papers](#))
[Rangel Daroya](#), Aaron Sun, Subhransu Maji.
7. **COSE: A consistency-sensitivity metric for saliency on image classification** [paper]
IEEE/CVF International Conference on Computer Vision Workshops (ICCVW), 2023.
[Rangel Daroya*](#), Aaron Sun*, Subhransu Maji. (* means equal contribution)
8. **REIN: Flexible mesh generation from point clouds** [paper]
IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2020.
[Rangel Daroya](#), Rowel Atienza, Rhandley Cajote.
9. **Alphabet sign language image classification using deep learning** [paper]
IEEE Region 10 Conference (TENCON), 2018.
[Rangel Daroya](#), Daryl Peralta, Prospero Naval.
10. **NDVI image extraction of an agricultural land using an autonomous quadcopter with a filter-modified camera** [paper]
IEEE International Conference on Control System, Computing and Engineering (ICCSCE), 2017.
[Rangel Daroya](#), Manuel Ramos.

WORK EXPERIENCE

University of Massachusetts, Amherst, MA, USA

Research Assistant, September 2022 – Present

- Develop and train novel computer vision models for environmental and scientific applications, regularly processing and analyzing terabytes of data.

- Authored a global model of rivers for hydrological analysis, set for deployment to the [NASA PO.DAAC](#) open-source data archive for ocean and climate data.

AngioInsight, Minnetonka, MN, USA

Engineering Intern (Part-time), June 2025 – August 2025

- Explored and implemented spatiotemporally dynamic segmentation algorithms for angiograms in medical applications.

Dolby Laboratories, San Francisco, CA, USA

Ph.D. Research Intern, May 2024 – August 2024

- Developed novel methods to explore task relationships, improving ML model performance and data efficiency.
- Resulted in a first-author [paper](#) published at CVPRW 2025 on transductive learning for segmentation models.

Thinking Machines Data Science, Taguig, Philippines [<https://thinkingmachin.es/>]

Team Lead & Machine Learning Researcher, February 2020 – January 2022

- Led development of a predictive model that resulted in a \$2 million project with a major telecommunications company.
- Designed and deployed cloud-native data analytics applications (backend and DevOps), performing analysis on terabytes of data for an investment firm with >\$300 billion in assets under management.
- Tech Stack: 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 the Philippine California Advanced Research Institutes (PCARI) “*AIRSCAN*” project in collaboration with the University of California Berkeley.
- Proposed and implemented 3D reconstruction algorithms, achieving >80% improvement over baseline methods and resulting in a research [paper](#).
- Designed a customized algorithm for 3D semantic building map augmentation, resulting in a [patent](#).

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)
 - Competitive scholarship awarded to a first-year graduate student in Machine Learning.
- ICCV Travel Grant for Broadening Participation (2025)
- CVPR Travel Grant for inclusion (2024)
- Oblation Scholar at University of the Philippines (2012-2017)
 - Prestigious full scholarship given to the top 50 of 60,000+ university applicants.

PATENT

- **Semantic Three-dimensional (3D) Building Augmentation**, PH12021050443 (2025). Inventors: Shakira Arguelles, Ferdinand John Briones, Izza Claire Jalandoni, Wonkyun Park, Jonric Mirando, James Carl Necio, Raimarc Dionido, Rowel Atienza, Soonyoung Lee, [Rangel Daroya](#), Daryl Peralta.

PROFESSIONAL ACTIVITIES

- Program committee, New England Computer Vision (NECV) Workshop 2025 [[page](#)]
- Co-organizer, Machine Learning and Friends Lunch (MLFL), University of Massachusetts, Amherst (2024 – present) [[page](#)]
 - MLFL is a weekly interactive forum at the university where we invite industry researchers and faculty to talk about their field of expertise
- Mentor, Early Research Scholars Program for undergraduates, University of Massachusetts, Amherst (2024 – present)
- Ph.D. Application Reviewer, University of Massachusetts, Amherst (2023, 2024)
- Reviewer for IJCV 2024, ECCV 2024, CVPR 2025, ICCV 2025, NeurIPS 2025, AAAI 2026
- Mentor, GradMAP Philippines for STEM career mentorship (2022-2024) [[page](#)]

SKILLS

- Programming Languages: Python, MATLAB, C/C++
- Machine Learning and Data Science: PyTorch, PyTorch-lightning, Tensorflow, scikit-learn, NumPy, Pandas, SciPy
- Others: Remote Sensing, Multispectral Images, Software Environment Management, Shell Scripting, High Performance Computing (HPC), multi-GPU training, Git, Docker, LaTeX, QGIS