

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)

- Focus: Exploring multi-task/transfer learning for multi-modal applications (e.g., text, images).
- Focus: Developing robust embeddings for large-scale environmental and scientific applications.
- *Advisor: Prof. Subhransu Maji*

University of the Philippines, Diliman, Quezon City, Philippines

M.S. Electrical Engineering (GPA: 3.95/4.00), January 2018 – July 2020

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).

WORK EXPERIENCE

University of Massachusetts, Amherst, MA, USA

Research Assistant, September 2022 – Present

- Developing novel multi-modal computer vision models that fuse satellite imagery with wildlife observation metadata to improve image embeddings (WildSAT, ICCV 2025).
- Built a global model of rivers for hydrological analysis, deployed to the [NASA PO.DAAC](#), processing terabytes of data using HPC clusters to solve environmental problems at scale (featured in a UMass article [here](#)).

AngioInsight, Minnetonka, MN, USA

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

- Explored and implemented spatio-temporally 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.

University of the Philippines, Quezon City, Philippines

University Researcher III, May 2018 – January 2020

- Proposed and implemented 3D reconstruction algorithms, improving over baseline methods, and resulting in a [paper](#).
- Designed a customized algorithm for 3D semantic building map augmentation, resulting in a [patent](#).

PUBLICATIONS (Full updated list: [Google Scholar](#))

Journals

1. **Operational near real time global riverine sediment flux estimates from space** [[paper](#)]
Geophysical Research Letters (GRL), 2026.
Luisa Vieira Lucchese, [Rangel Daroya](#), Travis T Simmons, Punwath Prum, Nikki E Tebaldi, Tamlin M Pavelsky, Subhransu Maji, John R Gardner, Colin Joseph Gleason.
2. **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 Vieira Lucchese, Travis Simmons, Punwath Prum, Tamlin Pavelsky, John Gardner, Colin Gleason, Subhransu Maji.

Refereed conferences

1. **RealBirdID: Benchmarking Bird Species Identification in the Era of MLLMs** [[paper](#)]
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026 (to appear).
Logan Lawrence, Mustafa Chasmai, [Rangel Daroya](#), Wuao Liu, Seoyun Jeong, Aaron Sun, Max Hamilton, Fabien Delattre, Oindrila Saha, Subhransu Maji, Grant Van Horn.
2. **SuperRevolution: Fine-Scale Rivers from Coarse Temporal Satellite Imagery** [[paper](#)]
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2026.
[Rangel Daroya](#), Subhransu Maji.
3. **RiverScope: High-Resolution River Masking Dataset** [[paper](#)]
Association for the Advancement of Artificial Intelligence (AAAI), 2026. ([Oral presentation](#))

AGU 2025, *Remote Sensing of Rivers, Lakes, Reservoirs, and Wetlands*. ([Oral Presentation](#))

[Rangel Daroya](#), Taylor Rowley, Jonathan Flores, Elisa Friedmann, Fiona Bennitt, Heejin An, Travis Simmons, Marissa Jean Hughes, Camryn L Kluetmeier, Solomon Kica, J. Daniel Vélez, Sarah E. Esenther, Thomas E. Howard, Yanqi Ye, Audrey Turcotte, Colin Gleason, Subhransu Maji.

4. **WildSAT: Learning Satellite Image Representations from Wildlife Observations** [[paper](#)]
IEEE/CVF International Conference on Computer Vision (ICCV), 2025.
Computer Vision for Ecology (CV4E) Workshop at ICCV, 2025. ([Spotlight Talk](#))
AGU 2025, *Advancing Artificial Intelligence for Remote Sensing*. ([Oral Presentation](#))
[Rangel Daroya](#), Elijah Cole, Oisin Mac Aodha, Grant Van Horn, Subhransu Maji.
5. **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.
6. **Alphabet sign language image classification using deep learning** [[paper](#)]
IEEE Region 10 Conference (TENCON), 2018.
[Rangel Daroya](#), Daryl Perlta, Prospero Naval.
7. **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.

Workshops

1. **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.
2. **COSE: A consistency-sensitivity metric for saliency on image classification** [[paper](#)]
IEEE/CVF International Conference on Computer Vision Workshops (ICCVW), 2023.
New England Computer Vision Workshop (NECV), 2022. ([Oral Presentation](#))
[Rangel Daroya*](#), Aaron Sun*, Subhransu Maji. (* means equal contribution)
3. **REIN: Flexible mesh generation from point clouds** [[paper](#)]
IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2020. ([Oral Presentation](#))
[Rangel Daroya](#), Rowel Atienza, Rhandley Cajote.

HONORS AND AWARDS

- AGU25 Remote Sensing Student Award for *RiverScope: High-Resolution River Masking Dataset* (2025) [[page](#)]
- 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.

TEACHING EXPERIENCE

University of Massachusetts, Amherst, MA, USA

Teaching Assistant, February 2026 – Present

- Assisted with course materials and mentored students for their course projects in “COMPSCI 682 Neural Networks: A Modern Introduction”

University of the Philippines, Diliman, Quezon City, Philippines

Senior Lecturer 1, August 2021 – August 2022

Lecturer 2, January 2018 – July 2021

- Designed and taught undergraduate lectures courses on topics related to introduction to Python programming, robotics, circuits, and telecommunications.

De La Salle University, Manila, Philippines

Lecturer, March 2022 – August 2022

- Designed and taught undergraduate courses on topics related to energy conversion, AC/DC motors, and machine learning.

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

- Co-organizer, 13th Workshop on Fine-Grained Visual Categorization (FGVC), CVPR 2026 [[page](#)]
- Co-organizer, Machine Learning and Friends Lunch (MLFL), UMass 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, UMass Amherst (2024 – present)
- Program committee and logistics committee, New England Computer Vision Workshop (NECV) 2025 [[page](#)]
- Reviewer: IJCV24, ECCV24, CVPR25, ICCV25, NeurIPS25, AAAI26, IJCV25, CVPR26, ECCV26
- Ph.D. Application Reviewer, UMass Amherst (2023, 2024)
- Mentor, GradMAP Philippines for STEM career mentorship (2022-2024) [[page](#)]
 - Mentorship support for students in the Philippines who want to pursue graduate studies overseas

TECHNICAL SKILLS

- Programming Languages: Python, MATLAB, C/C++
- Deep Learning: PyTorch, PyTorch-lightning, Tensorflow, scikit-learn, Vision Transformers (ViT), Self-supervised Learning
- HPC & Scalable AI: Multi-GPU Training, High Performance Computing (HPC), Docker, Shell Scripting
- Domains & Tools: Remote Sensing, Multispectral Images, NumPy, Pandas, Git, LaTeX, QGIS