Danny Xie Li

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Education

Department of Computer Science, Instituto Tecnológico de Costa Rica Costa Rica
MS.c. in Computer Science with emphasis of Artificial Intelligence 2023 - 2025 *(expected)*

- Advisor: Ph.D. Fabián Fallas Moya
- Research area: Foundational Models and Deep Learning
- Thesis: Object Detection on Image and Video from Drone Agriculture Data Using Deep Learning

Department of Computer Science, Instituto Tecnológico de Costa Rica Costa Rica
B.E. in Computer Science 2016 - 2020

- Advisor: Ph.D. Saúl Calderón Ramírez
- Graduation Project: Ml4h auditing: From paper to practice

Publications

1. F. Fallas-Moya, **D. Xie-Li**, and S. Calderon-Ramirez, *"Squeeze Every Bit of Insight: Leveraging Few-shot Models with a Compact Support Set for Domain Transfer in Object Detection from Pineapple Fields"*, 2025 Latin American Computer Conference (CLEI), Valparaíso, Chile, 2025. **[Accepted – In publication]**
2. **D. Xie-Li**, F. Fallas-Moya, and N. Agüero-Elizondo, *"Tracking Through Words: A Novel Framework for Data Association in Tracking-by-Detection using Large Language Models"*, 44th International Conference of the Chilean Computer Science Society (SCCC), Valparaíso, Chile, 2025 **[Accepted – In publication]**
3. **D. Xie-Li** and F. Fallas-Moya, "PineSORT: A Simple Online Real-time Tracking Framework for Drone Videos in Agriculture," in *Proc. IEEE/CVF Conf. Computer Vision and Pattern Recognition (CVPR) Workshops*, 2025
4. **D. Xie-Li**, F. Fallas-Moya, and S. Calderon-Ramirez, "Simple Object Detection Framework without Training," in *2024 IEEE 6th International Conference on BioInspired Processing (BIP)*, Liberia, Guanacaste, Costa Rica, 2024
5. K. Camacho, E. Herrera, **D. Xie-Li**, and E. Arias-Méndez, "The Women's Antenna: An Experience of Community Technology Construction Led by Cabécar Women of Costa Rica," in *2023 IEEE International Humanitarian Technology Conference (IHTC)*, Santa Marta, Colombia, 2023
6. **D. Xie-Li** and E. A. Méndez, "Artificial Intelligence in STEM Education: Interactive Hands-on Environment Using Open Source Electronic Platforms," *Tecnología en Marcha*, 2023
7. L. Oala, J. Fehr, L. Gilli, P. Balachandran, A. W. Leite, S. Calderon-Ramirez, **D. Xie-Li**, G. Nobis, E. A. M. Alvarado, G. Jaramillo-Gutierrez, C. Matek, A. Shroff, F. Kherif, B. Sanguinetti, and T. Wiegand, "ML4H Auditing: From Paper to Practice," in *Proc. Machine Learning for Health NeurIPS Workshop*, 2020

Work Experience

Research Assistant | Costa Rica Institute of Technology 2025.01 – 2025.12

- Led the development of algorithms and experiments with instruction-based Large Language Models (LLMs) for Spanish and low-resource text simplification and text complexity assessment using deep learning.
- Authored research papers, presented findings, and effectively communicated technical results to diverse audiences.

Research Assistant | National Center for High Technology of Costa Rica 2024.10 - 2025.08

- Conducted applied research in precision agriculture, developing automated fruit detection and yield estimation systems from drone-based video of pineapple plantations.
- Designed and optimized deep learning models for robust pineapple detection under real-world conditions.
- Research areas included Multi-Object Tracking, Video and Image Analysis, UAVs, and Precision Agriculture.

Data Engineer | Accenture AI 2021.05 - 2024.04

- Developed scalable search and classification systems for e-commerce, including a Python-based Search API using Elasticsearch and a multimodal classification engine leveraging text and image embeddings.
- Performed search quality analysis using statistical methods, topic modeling, and clustering to enhance retrieval performance.
- Worked extensively with cloud platforms (Azure ML, AWS SageMaker, Google Cloud Vertex AI) and deep learning frameworks (PyTorch, TensorFlow, Hugging Face, Sentence Transformers).
- Specialized in Search API Development, Elasticsearch Optimization, and Multimodal Embedding Techniques.

Research Assistant | Costa Rica Institute of Technology 2020.08 - 2021.01

- Applied the ITU/WHO FG-AI4H audit framework to evaluate machine learning models for healthcare applications, including diabetic retinopathy detection.
- Assessed model interpretability and robustness, identifying key challenges in translating research models into clinical practice.
- Research areas included supervised and semi-supervised learning, medical imaging, model robustness, and image perturbations.

Projects

Face de-identification using diffusion models
Computer Vision Lab, University of Ljubljana 2025.10 - Now

Text simplification for accessibility using Large Language Models
Language Sciences Faculty, Costa Rica Institute of Technology 2025.03 - Now

Video Detection Fruit Detection in Video Using Deep Learning
National Center for High Technology of Costa Rica 2024.10 - 2025.08

Machine Learning for Heath
PAttern Recognition and MAchine LEarning Group, Costa Rica 2020.08 - 2021.01

Internships

Eastern Europe Machine Learning School | Novi Sad, Serbia 2023.07 - 2023.12

Computer Vision Lab, University of Ljubljana | Slovenia, Ljubljana 2025.10 - Now

Awards and Honors

- **Outstanding Volunteer Award**, IEEE Costa Rica Section 2023.02
- **EDS Student Branch Chapter of the Year Award**, Electron Devices Society 2020.12

Skills

Languages: Spanish, English and intermediate Mandarin/Cantonese.

Programming: `Python`, `Java`, `C/C++`.

Technologies: `Google Cloud`, `ElasticSearch`, `Vertex AI`, `Amazon Sagemaker`, `Pytorch`, `Tensorflow`.

Volunteering

Chapter Chair, IEEE Signal Processing Society | Costa Rica Section 2024.04 - Now

- Led the IEEE Signal Processing Society Costa Rica Section, driving initiatives in research, education, and professional development.
- Organized technical talks, workshops, and networking events in signal processing.
- Fostered collaboration among academia, industry, and students.
- Promoted member engagement and community growth within the Society.
- Wrote proposals to apply for funding to execute humanitarian projects, organize summer schools, and deliver oral presentations.

Student Representative | IEEE Region 9 (Latin America) 2023.12 - 2024.12

- Elected to represent and advocate for students across Latin America within the IEEE Student Activities Committee.
- Represented Latin American student interests in global IEEE forums.
- Collaborated with regional leaders to strengthen student branches and chapters.
- Promoted networking, leadership, and professional development opportunities.
- Supported and lead initiatives to expand student participation in IEEE conferences and activities.

Chair, IEEE Student Activities | IEEE Costa Rica Section 2022.05 - 2023.12

- Led the revitalization and growth of IEEE student activities nationwide, fostering engagement, leadership, and collaboration across universities.
- Coordinated nationwide initiatives to strengthen student participation in IEEE.
- Promoted leadership and professional development opportunities.
- Encouraged collaboration among student branches and affinity groups.
- Reenergized student branches and chapters in the post-pandemic period.