

EDUCATION

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

- **Advisor:** Ph.D. Fabián Fallas-Moya
- **Research:** Visual Foundational Models and few-shot 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
- **Research:** Supervised/semi-supervised learning, robustness, and uncertainty
- **Graduation Project:** ML4h auditing: From paper to practice

SELECTED PUBLICATIONS

1. 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
2. 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 Conference on Neural Information Processing Systems (NeurIPS) Workshop*, 2020
3. 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
4. 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
5. M. Gonzalez-Hernandez, F. Fallas-Moya, W. Rodriguez-Montero, D. Xie-Li, B. Roman-Solano, F. Corrales-Garro, A. Sadovnik, H. Qi, "Evaluation of the Influence of Multi-spectral Imaging for Object Detection in Pineapple Crops," *2023 IEEE 5th International Conference on BioInspired Processing (BIP)*, San Carlos, Alajuela, Costa Rica, 2023, pp. 1-6, doi: 10.1109/BIP60195.2023.10379335.
6. 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. [\[Accepted – In publication\]](#)
7. 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 [\[Accepted – In publication\]](#)

RESEARCH EXPERIENCE	Visiting Researcher University of Ljubljana, Computer Vision Lab 2025.07 – 2025.12
	<ul style="list-style-type: none"> • Researched face de-identification using generative models, developing and evaluating privacy-preserving pipelines that remove identity while maintaining biometric utility.
	NLP Researcher Costa Rica Institute of Technology 2025.01 – 2025.12
	<ul style="list-style-type: none"> • Investigated LLM-based open-source models for Spanish text simplification, leading end-to-end experimentation including fine-tuning, evaluation, and reporting to support accessibility for visually impaired populations.
INDUSTRY EXPERIENCE	Research Scientist National Center for High Technology (CeNAT) 2024.10 – 2025.08
	<ul style="list-style-type: none"> • Built deep-learning pipelines for drone-based agricultural image/video analysis with an industry partner, including fruit detection, yield estimation, and tracking.
	Research Assistant Costa Rica Institute of Technology 2020.08 – 2021.01
	<ul style="list-style-type: none"> • Applied the ITU/WHO FG-AI4H audit framework to evaluate ML models for healthcare, including diabetic retinopathy detection. • Assessed model interpretability, robustness, and supervised/semi-supervised methods for medical imaging.
PROJECTS	Data Engineer Accenture 2021.05 – 2024.04
	<ul style="list-style-type: none"> • Developed large-scale search and classification pipelines for global e-commerce using Elasticsearch, Python, and multimodal (text+image) deep learning. • Built and maintained a production Search API with embeddings, vector search, and relevance ranking, improving retrieval quality and user experience. • Led search-quality evaluations using statistical modeling, clustering, and topic modeling to guide relevance improvements. • Implemented ML workflows on Azure ML, AWS SageMaker, and Vertex AI. Stack: PyTorch, TensorFlow, Hugging Face, Sentence Transformers, Docker, Linux.
	Face de-identification using diffusion models <i>Computer Vision Lab, University of Ljubljana</i> 2025.10 - Now
	Text simplification for accessibility using Large Language Models <i>Language Sciences Faculty, Costa Rica Institute of Technology</i> 2025.03 - Now
INTERNSHIPS	Video Detection Fruit Detection in Video Using Deep Learning <i>National Center for High Technology of Costa Rica</i> 2024.10 - 2025.08
	Machine Learning for Health <i>PAttern Recognition and MACHine LEarning Group, Costa Rica</i> 2020.08 - 2021.01
AWARDS AND HONORS	Eastern Europe Machine Learning School Novi Sad, Serbia 2023.07 - 2023.12
	Computer Vision Lab, University of Ljubljana Ljubljana, Slovenia 2025.10 – Present
AWARDS AND HONORS	<ul style="list-style-type: none"> • Outstanding Volunteer Award, IEEE Costa Rica Section 2023.02 • EDS Student Branch Chapter of the Year Award, Electron Devices Society 2020.12

OUTREACH ACTIVITIES

Chapter Chair, IEEE Signal Processing Society | Costa Rica Section 2024.04 – Present

- Led chapter initiatives in research, education, and professional development.
- Organized technical events and strengthened academia–industry–student collaboration.
- Drove member engagement and secured funding for workshops, summer schools, and humanitarian projects.

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

- Represented Latin American students in IEEE global and regional committees.
- Supported and strengthened student branches and leadership development.
- Promoted student participation in IEEE initiatives and conferences.

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

- Led nationwide student engagement and revitalized branches post-pandemic.
- Coordinated initiatives to expand student leadership and collaboration.
- Promoted professional development across universities.