

## 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. M. Gonzalez-Hernandez et al., "Evaluation of the Influence of Multispectral 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.
8. 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	<b>Research Assistant</b>   Costa Rica Institute of Technology	2025.01 – 2025.12
	<ul style="list-style-type: none"> <li>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.</li> <li>Authored research papers, presented findings, and effectively communicated technical results to diverse audiences.</li> </ul>	
	<b>Research Assistant</b>   National Center for High Technology of Costa Rica	2024.10 - 2025.08
	<ul style="list-style-type: none"> <li>Conducted applied research in precision agriculture, developing automated fruit detection and yield estimation systems from drone-based video of pineapple plantations.</li> <li>Designed and optimized deep learning models for robust pineapple detection under real-world conditions.</li> <li>Research areas included Multi-Object Tracking, Video and Image Analysis, UAVs, and Precision Agriculture.</li> </ul>	
	<b>Data Engineer</b>   Accenture AI	2021.05 - 2024.04
PROJECTS	<ul style="list-style-type: none"> <li>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.</li> <li>Performed search quality analysis using statistical methods, topic modeling, and clustering to enhance retrieval performance.</li> <li>Worked extensively with cloud platforms (Azure ML, AWS SageMaker, Google Cloud Vertex AI) and deep learning frameworks (PyTorch, TensorFlow, Hugging Face, Sentence Transformers).</li> <li>Specialized in Search API Development, Elasticsearch Optimization, and Multimodal Embedding Techniques.</li> </ul>	
	<b>Research Assistant</b>   Costa Rica Institute of Technology	2020.08 - 2021.01
	<ul style="list-style-type: none"> <li>Applied the ITU/WHO FG-AI4H audit framework to evaluate machine learning models for healthcare applications, including diabetic retinopathy detection.</li> <li>Assessed model interpretability and robustness, identifying key challenges in translating research models into clinical practice.</li> <li>Research areas included supervised and semi-supervised learning, medical imaging, model robustness, and image perturbations.</li> </ul>	
	<b>Face de-identification using diffusion models</b> <i>Computer Vision Lab, University of Ljubljana</i>	2025.10 - Now
	<b>Text simplification for accessibility using Large Language Models</b> <i>Language Sciences Faculty, Costa Rica Institute of Technology</i>	2025.03 - Now
INTERNSHIPS	<b>Video Detection Fruit Detection in Video Using Deep Learning</b> <i>National Center for High Technology of Costa Rica</i>	2024.10 - 2025.08
	<b>Machine Learning for Health</b> <i>PAttern Recognition and MACHine LEarning Group, Costa Rica</i>	2020.08 - 2021.01
	<b>Eastern Europe Machine Learning School</b>   Novi Sad, Serbia <b>Computer Vision Lab, University of Ljubljana</b>   Slovenia, Ljubljana	2023.07 - 2023.12 2025.10 - Now
AWARDS AND HONORS	<b>Outstanding Volunteer Award</b> , IEEE Costa Rica Section	2023.02
	<b>EDS Student Branch Chapter of the Year Award</b> , 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 Sage-maker, 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.