

## EDUCATION

<b>Department of Computer Science, Instituto Tecnológico de Costa Rica</b>	Costa Rica
<i>MS.c. in Computer Science with emphasis of Artificial Intelligence</i>	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	
<b>Department of Computer Science, Instituto Tecnológico de Costa Rica</b>	Costa Rica
<i>B.E. in Computer Science</i>	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. Sanginetti, 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 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.
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

- 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

- 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.

**Research Scientist** | National Center for High Technology (CeNAT) 2024.10 – 2025.08

- 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

- 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.

## INDUSTRY EXPERIENCE

**Data Engineer** | Accenture 2021.05 – 2024.04

- 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.

## 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 Health**

*PAttern Recognition and MArine 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** | Ljubljana, Slovenia 2025.10 – Present

## 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

**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.