GUSTAVO A. VARGAS HAKIM

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OBJECTIVE

I am a PhD candidate specializing in Machine Learning and Computer Vision, with expertise in test-time adaptation and anomaly detection to enhance model performance in dynamic environments. With a strong foundation in deep learning, algorithm development, and applied research, I have contributed to industrial applications through my work with Zebra Technologies and academic projects. I am seeking a position where I can leverage my skills to solve complex challenges, drive innovation, and contribute to impactful advancements in Machine Learning, weather data analysis, or engineering domains.

EXPERIENCE

Student Researcher Jan 2022 - Ongoing
Zebra Technologies *Montreal, Canada*

- Conducted applied research in industrial Anomaly Detection.
- Implemented state-of-the-art machine learning techniques in collaboration with a cross-functional team.
- Led the optimization of current products to double processing speed on CPUs.

EDUCATION

PhD in Engineering, École de Technologie Supérieure, Montreal Expected 2025

- Conducting research in Test-Time Adaptation for Computer Vision models.
- Research contributions in top venues introduced novel adaptation algorithms.
- Research internship at Sorbonne Université, under Professor Nicolas Thome on advanced domain adaptation techniques.

Master in Artificial Intelligence, University of Veracruz, Mexico 2021
Relevant Coursework: Computer Vision, Machine Learning, Evolutionary Computation, and Data Analysis

Bachelor of Mechatronics Engineering, UPAEP, Mexico 2019
Exchange student at Oklahoma State University (2018)

SKILLS

Programming languages	Python, MATLAB
Tools and libraries	Deep Learning frameworks: PyTorch
	Data Analysis: NumPy, Pandas, SciPy, Scikit-learn
	Visualization: Matplotlib, Seaborn
Technical skills	Deep Learning, Computer Vision, Machine Learning Algorithms, Probabilistic analysis
Languages	English (fluent), French (fluent), Spanish (native)

RESEARCH

CLIPArTT: Adaptation of CLIP to New Domains at Test-Time. WACV 2025

NC-TTT: A Noise Constrastive Approach for Test-Time Training. CVPR 2024

Clust3: Information invariant test-time training. ICCV 2023

Tttflow: Unsupervised test-time training with normalizing flow. WACV 2023

Hybrid encodings for neuroevolution of convolutional neural networks: A case study. GECCO 2021

A review on convolutional neural network encodings for neuroevolution. IEEE Transactions on Evolutionary Computation