Valentinos Pariza

PhD Student in AI at University of Technology Nuremberg

valentinos.pariza@utn.de | linkedin.com/in/valentinos-pariza/ | github.com/vpariza

SUMMARY

AI enthusiast and PhD researcher specializing in Self-Supervised Learning for vision, driven by a passion to uncover the strengths and limitations of Deep Learning models and technologies. Guided by curiosity and fueled by innovation, I strive to explore, learn, and contribute to shaping the future of AI with every discovery.

EDUCATION

University of Technology Nuremberg (UTN)   Dec 2024 – Present

PhD in Deep Learning for Vision   *Nuremberg, Germany*

- Working for understanding and improving upon the limitations of Vision Models with the use of self-supervised learning and synthetic data.

University of Amsterdam (UvA)   Sep 2022 – Aug 2024

MS in Artificial Intelligence, School of Informatics   *Amsterdam , Netherlands*

- Graduated with **cum laude** and a GPA: 9.03/10.
- Graduted from the Ellis MS of Honours Programme.

University of Cyprus (UCY)   Sep 2017 – June 2022

BSc in Computer Science (Specialization in A.I.), Department of Computer Science   *Nicosia , Cyprus*

- GPA: 9.36/10 (Graduated with the 2nd highest GPA in the CS Department class).
- Thesis: "*Accelerating Quality Diversity Optimization for robot tasks using JAX and Differentiability*".

EXPERIENCE

Research Intern   Feb 2024 - Jul 2024

TNO - Netherlands Organisation for Applied Scientific Research   *Amsterdam, Netherlands*

- Working for improving In-Context Learning in Computer Vision with Patch Nearest Neighbor Consistency as part of my MS Thesis at UvA (Supervised by Dr. Yuki M. Asano, and Dr. Gertjan Burghouts).

Data Science Intern   Jul 2023 - Aug 2023

South Pole   *Amsterdam, Netherlands*

- Diagnosed issues in the company's matching algorithm from Products to CO_2 emission Categories, by analyzing its past matchings' logs/results.
- Generated a ground truth dataset for evaluating the algorithm's performance matching using web scraping.
- Improved Product to Category matching algorithm's top-1 accuracy by 25.2% using a Text Transformer Encoder.
- Orchestrated the inference and training deployment of the developed models to production using Kubernetes.

Research Intern   Jun 2022 - July 2022

CYENS Centre of Excellence   *Nicosia, Cyprus*

- Developed a Python library using JAX for Quality Diversity Optimization (QD), that sped-up the efficiency of state-of-the-art QD algorithms by more than twice as much.

Co-Founder & Backend Developer   Oct 2019 - Mar 2022

Fooderloo   *Nicosia, Cyprus*

- Developed and implemented a business idea against Food Waste in Cyprus.
- Developed the backend, the Database and the server-side of the application.

Software Development Engineer Intern   Aug 2020 - Jul 2021

Amazon Data Services Ireland   *Dublin, Ireland*

- Developed and deployed a report generation service that automated process, saving hours of manual work.
- Improved a Java library for programmatically accessing internal data from the AWS, which improved accessibility.
- Led two campaigns to promote Good Code Logging Practices across Amazon, resulting in annual cost savings of thousands of dollars.

- Optimized one of Amazon's largest real-time log analysis services, by improving its accessibility and efficiency.

Research Intern   Jun 2020 - Aug 2020

CYENS Centre of Excellence   *Nicosia, Cyprus*
- Engineered an end-to-end system for Speech Emotion Recognition in Dyadic Conversations, building upon state-of-the-art methodologies.

Research Intern   Jun 2019 - Jul 2019

Department of Computer Science, University of Cyprus   *Nicosia, Cyprus*
- Developed fault-tolerant message routing and faulty node/edge identification algorithms for specific limited micro-networks of small hardware devices, resulting in speeding up the overall performance of the system by 2%.
- Developed a program for simulating micro-network routing algorithms (Java and AnyLogic), that helped evaluate and test the algorithms.

Signal Soldier   Jul 2016 - Sep 2017

National Guard of Cyprus   *Nicosia, Cyprus*
- Had the role of Network & Computers Technician as well as the role of operating the intra-offices.

PROJECTS

Master Thesis Side Project | *open-hummingbird-eval*   September 2023 – August 2024
- Developed and published the Dense Nearest Neighbor Retrieval Evaluation (Balažević et al. *"Towards In-context Scene Understanding"*) for testing the In-Context Learning Capabilities of vision encoders.

Computer Vision 2 (UvA) | *CVPR2023-3D-Occupancy-Prediction-CV2*   Apr 2023 – Jun 2023
- I examined the robustness and reliability of various State-of-the-Art 3D Occupancy Prediction Models by testing their performance under noisy or corrupted input data conditions, simulated by synthetic data.
- I showed the existing inadequacy of training models with data lacking real-world scenarios, and showed further state-of-the-art results on both noisy (1-3% increase) and clean datasets (0.5-1% increase) when applying appropriate data augmentations to prepare models for such conditions.

Deep Learning 2 (UvA) | *SocraticImageGeneration*   Apr 2023 – Jun 2023
- Designed and implemented an iterative approach, inspired by the *Socratic Models*, consisting of a pipeline of many models that given a prompt it generates an improved image by iteratively refining the prompt, from the history of generated images and their refined (by an LLM) captions for that prompt.
- My study showed the bias and hallucination effects when connecting different models to each other.

CS343: Software Engineering (UCY) | *Recommender System for Foody* Sep 2019 – Dec 2019
- Designed and developed a prototype of Recommender System for the online Food Ordering service Foody.

SKILLS

Languages: Java, C/C++, Python, SQL, Javascript/TypeScript, HTML, CSS
Frameworks: Angular, ReactJS, Pytorch & Pytorch Lightning, Jax, Selenium, JUnit, Tensorflow & Keras
Developer Tools: Git, Docker, Google Cloud Platform, Kubernetes, AWS
Soft Skills: Critical Thinking, Problem Solving, Teamwork, Hard-working, Effective Communicator

AWARDS

Best "*Ready for Production Solution*" *August 2023*
Best Deployed algorithm developed during working at South Pole as part of the Summer of AI event.

1st place in the "*Go Green, Go Digital, Go Start-up!*" competition *March 2021*
Awarded for my business idea Fooderloo and its impact to more environmentally friendly solutions in Europe.

Best & Most Innovative Solution 2020 *July 2020*
Awarded for my business idea Fooderloo in the Cyprus Digital Championship for Students.

PUBLICATIONS

Accepted in ICLR2025 Valentinos Pariza et al. *NeCo: Improving DINOv2's spatial representations in 19 GPU hours with Patch Neighbor Consistency.* 2024. arXiv: 2408.11054 [cs.CV]. URL: https://arxiv.org/abs/2408.11054

Accepted in ReScience C V. Pariza et al. "Reproducibility Study of "Label-Free Explainability for Unsupervised Models"". In: *ReScience Volume 9 Issue 2 Article 11*. 2023. URL: https://openreview.net/forum?id=qP34dvJpHd