Israfel Salazar

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EDUCATION

UNIVERSITY OF COPENHAGEN
PhD in Multimodal Machine Learning
Sep 2024 - Present 2024

ÉCOLE NORMALE SUPÉRIEURE (ENS)
MSc Mathematics, Vision and Learning (MVA)
Oct 2022 - Oct 2023
Cum. Grade 16.26/20 (GPA 4.0)

UNIVERSITY PARIS-SACLAY
MSc Electrical Engineering, Machine Vision and AI
Jun 2020 - Jun 2022
Cum. Grade: 15.4/20 (GPA 3.7)
Best student of the major

UNIVERSITY OF CHILE
Mechanical Engineer (Engineering Diploma)
Completed Jun 2018
Cum. Grade: 6.2/7.0 (GPA 3.7)
Years of studies: 6

COURSEWORK

Probability and Statistics
Linear Algebra
Convex Optimization
Algorithms and Data Structures
Computational Statistics
Information Theory
3D Computer Vision
Deep Reinforcement Learning
Advanced Learning for Text and Graphs
Image and Video Processing
Generative Models
CS232N CNNs for Visual Recognition

SKILLS

PROGRAMMING
Advanced:
Python • Pytorch • Pandas • Scikit-Learn
HuggingFace • GIT
Intermediate:
Tensorflow • SQL • Java • C++
Familiar:
R • ROS • CSS/HTML • VHDL • THREE.js

LANGUAGE
Spanish: Native
English: Fluent (C2)
French: Excellent command (C1)

EXPERIENCE

MBZUAI | Research Assistant
Dec 2023 – May 2024
- Presented new evaluation metric for fine-grained visual-language alignment.
- Demonstrated that CLIP-like models have poor fine-grained capabilities.
- Addressed CLIP's limitations, proposing a novel training objective for improved granularity.

DXO LABS | Research Engineer Internship
April 2023 – Nov 2023
- Developed a versatile codebase to create and evaluate different Diffusion architectures.
- Designed architecture and sampling technique, achieving state-of-the-art results in image deblurring and super sharpness.

HUGGING FACE | ML Researcher & Collaborator
June 2022 – December 2022
- Research project under the guidance of @Douwe Kiela and @Amanpreet Singh.
- Tested a unified approach to multimodal machine learning by processing text as images.
- Developed a pipeline for augmenting datasets modalities using generative models.
- Trained FLAVA to study performance impact of augmented multimodal datasets.

INRIA | Research Intern @Statify team
April 2022 – October 2022 | Grenoble, France
- Experimented with Bayesian Generative Deep Learning for genome viability prediction.
- Implemented Conditional Variational Autoencoders for genomic data generation.
- Improved genome viability prediction accuracy by 10% compared to statistical methods.

COPENHAGEN UNIVERSITY | Research Intern @Coastal
Oct 2021 – March 2022 | Copenhagen, Denmark
- Worked with Prof. Anders Søgaard on handwritten recognition of Danish registries.
- Led experiments on multi-task learning to leverage external datasets and tasks.
- Incremented accuracy by 2% by exhaustively comparing label encoding options.

EXCELERATE | Software Engineering Intern
Jul 2021 – Sept 2021 | Copenhagen, Denmark
- Built a pipeline that fetched and summarized descriptions of university courses.
- Developed a scraper to obtain course descriptions and designed database to store them.
- Integrated a large language model to summarize the coursework experience of a student.

MUNDOS VIRTUALES | Robotics Engineer
Apr 2018 – Nov 2019 | Santiago, Chile
- Designed, prototyped, and manufactured robotics components and machines.
- Developed scripts for robotic arms involving decision-making and integration.
- Created a dataset to fine-tune a YOLO architecture for detecting ripe fruits.
- Simulated and modeled robotic arms using 3D environments for fruit harvesting.

PROJECTS

LxMLS 2023: Core Monitor
- Designed Transformer-Day exercises with cross-attention and multihead self-attention modules, providing easy-to-code and test implementations along with clear explanations.
- Provided guidance to students during coding lab sessions.

Trajectory Generation with Diffusion Models
- Replicated and experimented with the pipeline proposed in Diffuser for offline reinforcement learning and trajectory generation.
- Developed pipeline for extending Diffuser to image-based observations.

Speech-to-Text Adversarial Robustness
- Implementing white-box gradient-based technique Fast Gradient Sign Methods (FGSM), to construct adversarial attacks and evaluate model robustness.
- Examining the impact of different parameters on adversarial robustness, including model size and language availability.