

# Israfel Salazar

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## EDUCATION

**ÉCOLE NORMALE SUPÉRIEURE (ENS)**  
MSC MATHEMATICS, VISION AND  
LEARNING (MVA)  
Oct 2022 - Present

**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)

## INTERESTS

Running  
Playing the guitar  
Animal cognition and behaviour enthusiast  
Human civilization history

## EXPERIENCE

### DXO LABS | RESEARCH ENGINEER INTERNSHIP

April 2023 – Present

- Conducted a survey of state-of-the-art generative models for image restoration.
- 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](#) and a team of PhD students on handwritten recognition of Danish registries (Python).
- 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 pre-trained transformer-based language model to summarize the coursework experience of a student ([code](#)).

### 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.
- Created dataset from trajectory simulations on the Minimize Push environment.
- 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.

## AWARDS

2020	Fellow	MIT Santander Scholarship: Leading Digital Transformation
2018	Honors	Graduated with the highest academic distinction
2015-2018	Honors	Dean's list