Itamar Franco **Salazar Reque**

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Summary

I am currently working in the group of Artificial Intelligence (AI) at INICTEL-UNI applying some machine learning and signal & image processing techniques to develop projects for national institutes in Peru. These projects are mostly related to agriculture and some biomedical applications. I did a remote internship at EPFL studying the inductive bias of Deep Neural Networks (DNN). I have teaching experience in signal processing and AI-related courses. During my master, I studied some techniques to solve the EEG inverse problem and in my undergrad I explored machine learning algorithms to automatically detect ill areas over plant leaves. My current interests are the applications of machine learning techniques and the study of their robustness.

Education

Universidad Nacional de Ingeniería — *Lima, Perú*

Master of Science, Electronic Engineer

- Research on the performance of EEG inverse techniques when varying electrode numbers and noise.
- With scholarship from peruvian government

Universidad Nacional de Ingeniería — *Lima, Perú*

Bachelor of science, Telecommunication Engineering

- Placed first in graduating class

Experience

EPFL — *Lausanne, Switzerland*

Research Intern — *Oct. 2020 - March 2021*

- Studying the inductive bias of Deep Neural Networks under the direction of Pascal Frossard
- With scholarship from the peruvian government.

INICTEL-UNI — *Lima, Perú*

Specialized researcher in technological development, Collaborator — *2018 - Present*

- We apply artificial intelligence and signal and image processing techniques to develop projects for national institutes in Peru:
- Avocado tree analysis using images acquired via drones. [Code][About the project]
- Amplifying the small movements a person makes when breathing.[Code] [About the project]
- App to automatically identify avocado diseases from digital images. [About the project]
- Satellite image processing to calculate evapotranspiration. [About the project]]

Lecturer at different universities from Peru — *Lima, Perú*

Lecturing in: — *03/2019 - Present*

- Signals and Systems - Universidad Peruana de Ciencias Aplicadas (UPC): 04/2020-Present
- MLPs and introduction to Fuzzy Logic - Universidad Tecnológica del Perú (UTP): 06/2019-03/2020
- Signals and Systems - Universidad Nacional Tecnológica de Lima Sur (UNTELS): 03/2019 - 06/2019

NYIT — *New York, U.S.A*

Visiting Research Fellow — *Oct. 2017 - Dec. 2017*

- Studying CPA algorithm and methods to process functional imaging of olfactory bulb responses. This work was conducted by Dr. Gonzalo Otazu at NYIT.

PERU MENU — *Lima, Peru*

Developer — *07/2012 - 08/2012*

- An app to find restaurants near to you.
- This was an informal job we made at university after winning a Hackaton, the job was directed by Federico Lara. Sadly the app never went to market.

Precursores de la Independencia Nacional (Secondary School) — *Lima, Peru*

Teaching to best students — *07/2010 - 09/2010*

- I taught arithmetic to top-10 students from first secondary year. Precursores de la Independencia Nacional was my school and it was a tradition that old students teach to new ones. I am really proud of this work.

Contributions

[1]	Ortiz-Jimenez, G., **Salazar-Reque, I.F.**, Apostolos Modas, Seyed-Mohsen Moosavi-Dezfooli, Pascal Frossard. A neural anisotropic view of underspecification in deep learning. In: Robust and Reliable Machine Learning in the Real World Workshop at International Conference on Learning Representations (ICLR 2021)	*Workshop*
[2]	**Salazar-Reque, I.F.**, Otazu G., Huaman S. (2020) Replacing FC layers in a CNN could improve robustness against adversarial attacks. CIFAR DLRL Summer School (available under request)	*Poster*
[3]	**Salazar-Reque, I.F.**, Huaman, S. Automatic Leaf Segmentation from Images Taken Under Uncontrolled Conditions Using Convolutional Neural Networks. In: Brazilian Technology Symposium'19 – Perú 2019 (BTSym 2019), **DOI:** 10.1007/978-3-030-57566-3_27	*Conference*
[4]	Morales, G., **Salazar-Reque, I.F.**, Telles, J., Díaz, D. Detecting Violent Robberies in CCTV Videos Using Deep Learning. In: 15th International Conference on Artificial Intelligence Applications and Innovations (AIAI 2019), **DOI:** 10.1007/978-3-030-19826-7	*Conference*
[5]	**Salazar-Reque, I.F.**, Pacheco, A.G., Rodriguez, R. Y., Lezama, J., and Huaman, S. An image processing method to automatically identify Avocado leaf state. In: XXII Symposium on Image, Signal Processing and Artificial Vision (STSIVA 2019). **DOI:** 10.1109/STSIVA.2019.8730218	*Conference*
[6]	**Salazar-Reque, I.F.**, Kemper G., Huamán S. G. H., Telles J. and Diaz D.,(2019). An Algorithm for Plant Disease Visual Symptom Detection in Digital Images based on Superpixels. International Journal on Advanced Science, Engineering and Information Technology, 9(1), pp. 194-203, **DOI:** 10.18517/ijaseit.9.1.5322	*Journal*

Skills

Programming	Current: Python, MATLAB. Old: C++, Qt, Java, HTML
Deep Learning Frameworks	PyTorch, Keras, TensorFlow(learning)
Languages	English (100/120 - TOEFL iBT), French (basic), Spanish (mother tongue)
Certifications	Huawei Artificial Intelligence (HCIA-AI). [See certificate]
Miscellaneous	Photography (Bird photography), Guitar

Awards

2015	**First place**, undergraduate class	*Lima, Perú*
2017	**Scholarship**, fully funded master studies	*Lima, Perú*
2020	**Scholarship**, internship at EPFL	*Lima, Perú*

Volunteering Activities

2011 - Present	**Active Volunteer**, IEEE UNI Student Branch	*Lima, Perú*
2013	**Chair**, IEEE UNI Student Branch, we publish some reports here: https://issuu.com/reieeeuni	*Lima, Perú*
2012	**Vice Chair**, Circuits and Systems IEEE UNI Student Chapter	*Lima, Perú*
2012	**Volunteer**, Rural Telecommunication Group	*Lima, Perú*
2011	**Co-Founder**, Computer Science Research Group - GICS Dennis Ritchie (https://es-la.facebook.com/GISCDennisRitchieUNI)	*Lima, Perú*
2011	**Organizer**, Student Congress - IEEE INTEERCON UNI 2011.	*Lima, Perú*