Itamar Franco **Salazar Reque**

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Summary

In my undergraduate thesis I studied algorithms to automatically detect ill areas over leaf digital images, this study allowed me to have a better understanding of some machine learning techniques (SVM, ANN, KNN, among others) and to have a better sense about the difficulty of vision tasks. After that I attended some short courses about neuroscience and I have become interested in the field and in the brain. I made a master in which I explored some techniques to solve the EEG inverse problem (MNE, WMNE, FOCUSS, MFOCUSS and Multiple Sparse Priors), I manipulated EEG recordings taken during attention tasks (P300 waves) using SPM software. During the last year I have been using CNNs in different problems like image or video classifications. I observed that current AI techniques have some problems manipulating "the unknown" in classification tasks (a.k.a openset problem) and that are vulnerable to small changes (adversarial examples). I am interested on those problems.

Education

Universidad Nacional de Ingeniería — *Lima, Perú*

Master of Science, Electronic Engineer

- Performance of EEG inverse techniques when varying electrode numbers and noise.

Universidad Nacional de Ingeniería — *Lima, Perú*

Bachelor of science, Telecommunication Engineering

- Algorithms for leaf ill areas segmentation on digital images.
- Placed first in graduating class

Experience

INICTEL-UNI — *Lima, Perú*

Researcher — *2015 - Present*

- App to identify avocado diseases from digital images.
- Satellite image processing to calculate evapotranspiration.

Universidad Tecnológica del Perú (UTP) — *Lima, Perú*

Teaching — *06/2019 - Present*

- Neural networks and fuzzy logic
- Digital Image Processing

Universidad Nacional Tecnológica de Lima Sur (UNTELS) — *Lima, Perú*

Teaching — *03/2019 - 06/2019*

- Digital Signal Processing
- Signals and Systems
- Numerical Methods
- Programming Language

New York Institute of Technology — *New York, U.S.A*

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

- Algorithms to process functional imaging of olfactory bulb responses

Contributions

[1] **Salazar-Reque, I.F.**, Huaman, S. (Accepted) Automatic Leaf Segmentation from Images Taken Under Uncontrolled Conditions Using Convolutional Neural Networks. In: Brazilian Technology Symposium'19 – Perú 2019 (BTSym 2019) — *Conference*

[2] 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*

[3] **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*

[4] **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 Matlab, Python
Languages English, French (basic), Spanish (mother tongue)

Awards

2015 **First place**, graduating class *Lima, Perú*