Gianmarco **Gallardo**

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Research Interests

My research interest is focused on computer vision and how learning techniques allow us to develop systems able to reason about the visual world. The main topics of my research interest include object detection and tracking, image captioning, medical imaging, and deep learning techniques for visual recognition problems.

Education

Universidad Nacional de Ingeniería (UNI)   *Rimac, Lima, Perú*

B.S. in Mechatronics Engineering   *Mar. 2011 - Dec. 2015*

- **Relevant course work:**
  Artificial Intelligence, Image Processing, Object Oriented Programming, Research Methodology, Statistics and Probabilities, Linear Algebra, Biology for Engineers, Analysis and Control of Robots, Sensor Technology.

Experience

Machine Learning Engineer   *San Isidro, Lima, Perú*

Everis Perú SAC   *May. 2018 - Present*

- Developed a vehicle damage classifier using convolutional networks with 70 percent of accuracy and deployed using Docker and flask for an insurance company
- Implemented a recommendation system with implicit feedback based on neural networks and collaborative filtering for 1.5 million of clients and +150K of items.
- Developed a real-time cosmetic product classification app for mobile devices by training a convolutional neural network (MobileNet) with 96 percent of accuracy.
- Applied a face emotion recognition system based on Squeeze-and-Excitation architecture to analyze customer satisfaction.
- Applied a real-time Multi-Object Tracking system based on YOLOV3 and deep association metrics in order to analyze offices space usage.
- Developed an audio emotion classifier with 70 percent of accuracy by training a deep convolutional neural network on spectrograms.
  Technologies used: Keras, TensorFlow Lite, Python, OpenCV, Librosa, Docker, PySpark

Research Intern - Lung Nodule Classification   *Malvern, Pennsylvania, U.S.A*

Siemens Healthineers   *Apr. 2017 - Mar. 2018*

- Improved their previous results on lung nodule classification by replacing their 2D approach with a 3D convolutional neural network. My system got 90 percent of sensitivity with 1.45 false positives per patient, reducing FP rate by 2x compared with the previous system.
- Developed a labeling tool for lung nodule images in order to decrease labeling time and get more labeled training data.
  Technologies used: Caffe, Python, SimpleITK, Tkinter

Research Assistant - Diabetic Retinopathy Detection   *Rimac, Lima, Perú*

Universidad Nacional de Ingeniería (UNI)   *Jul. 2016 - Mar. 2017*

- Trained a convolutional neural network to predict Diabetic Retinopathy cases from digital retina images with 83 percent of accuracy.
- The results were presented at International Conference on Artificial Neural Networks (ICANN 2017) held in Italy.
  Technologies used: Keras, Python, OpenCV

Software Tester   *La Molina, Lima, Perú*

International Business Machines (IBM)   *Apr. 2016 - Oct. 2016*

- Performed software testing to detect functional and nonfunctional errors, elaborated gantt charts for testing projects, designed and executed tests cases.
- Developed a face recognition system using IBM Watson visual recognition services in order to recognize clients.
  Technologies used: Python, SQL, OpenCV, Watson visual recognition

Research Assistant - Simultaneous Localization and Mapping

CENTER FOR INFORMATION TECHNOLOGY AND COMMUNICATIONS (CTIC)

Rimac, Lima, Perú

Jan. 2014 - Apr. 2015

- Developed the perception stage of an autonomous mobile robot simulation by implementing "Particle filter" for position estimation, and "Occupancy Grid Mapping" for map representation.
- Results were presented at International Symposium on Multibody Systems and Mechatronics (MUSME 2014) held in Mexico.
  Technologies used: Matlab, Python, ROS, BeagleBone Black

Computer Skills

Languages	Python, SQL, C++
Frameworks	Keras, Pytorch, Caffe, TensorFlow, Scikit Learn, OpenCV, SimpleITK, PySpark
Tools	Git, Docker, MATLAB, ROS, Power BI, Azure, Google Cloud Platform, Cloudera
Hardware Platforms	Arduino, BeagleBone Black, Rasberry PI
Operating Systems	Linux (Ubuntu), Windows

Publications

ICANN 2017

INTERNATIONAL CONFERENCE ON ARTIFICIAL NEURAL NETWORKS

2017

- García, G., Gallardo, J., Mauricio, A., López, J., & Del Carpio, C. (2017, September). Detection of Diabetic Retinopathy Based on a Convolutional Neural Network Using Retinal Fundus Images. In International Conference on Artificial Neural Networks (pp. 635-642). Springer, Cham.

MUSME 2014

INTERNATIONAL SYMPOSIUM ON MULTIBODY SYSTEMS AND MECHATRONICS

2014

- Mauricio, A., Nieves, A., Castillo, Y., Hilasaca, K., Fonseca, C., Gallardo, J., ... & Rodríguez, G. (2015). Multi-robot Exploration and Mapping Strategy in Underground Mines by Behavior Control. In Multibody Mechatronic Systems (pp. 101-110). Springer, Cham.

Extracurricular Activity

Everis Artificial Intelligence group

MEMBER & COORDINATOR

San Isidro, Lima, Perú

Aug. 2018 - Present

- Delivering internal workshops and presentations on a variety of Machine Learning topics in a biweekly basis.

Artificial Intelligence research group (GISCIA) - UNI

MEMBER & PRESIDENT AT 2016

Rimac, Lima, Perú

Mar. 2013 - Dec. 2016

- Organizing meetings, seminars and talks introducing undergraduates to research projects in Deep Learning, Computer Vision and Robotics.

Honors & Awards

2018	**Speaker**,	Everis Talks webinar series - Computer Vision
2016	**Research Grant**,	Research Institute of the Mechanical Eng. Department (INIFIM)
2016	**President**,	Artificial Intelligence and Control Systems Research Group (GISCIA)
2014	**Travel Grant**,	Universidad Nacional de Ingenieria Travel Grant to MUSME Symposium
2014	**Speaker**,	National Conference of Technology organized by CONCYTEC
2013	**Travel Grant**,	Mechanical Engineering Department Travel Grant to XII LARC
2013	**Scholarship**,	Training course at Digital Manufacturing Center FabLab UNI

Languages

English	Advanced (TOEFL iBT score: 99)
Spanish	Native Speaker