Jhair Gallardo

gg4099@rit.edu jhairgallardo.github.io jhairgallardo jhairgallardo

Research Interests

My research interest is focused on computer vision and learning techniques to develop systems able to reason about the visual world. The main topics of my research interest include self-supervised learning, lifelong machine learning, and deep learning techniques for visual recognition problems.

Education

Rochester Institute of Technology (RIT) *Rochester, New York, U.S.A.*

Ph.D. in Imaging Science *Aug. 2019 - May 2024 (expected)*

Deep Learning and Computer Vision

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

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

Data Scientist *San Isidro, Lima, Peru*

Everis Peru SAC *May. 2018 - Jul. 2019*

- Developed a vehicle damage intensity classifier using a deep convolutional neural network with 70 percent of accuracy. Deployed the system 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: Pytorch, Keras, TensorFlow Lite, Python, OpenCV, Librosa, Docker, PySpark, DVC, Git, GitHub

Machine Learning 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, Peru*

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

Research Assistant - Simultaneous Localization and Mapping *Rimac, Lima, Peru*

Center for Information Technology and Communications (CTIC) *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
Frameworks	Pytorch, Keras, Scikit Learn, OpenCV
Tools	Git, DVC (Data Version Control), Docker

Publications

- **J. Gallardo**, T.L. Hayes, C. Kanan. Self-supervised training enhances online continual learning. In: British Machine Vision Conference (BMVC), 2021
- G. García, **J. Gallardo**, A. Mauricio, J. López, C. Del Carpio. Detection of diabetic retinopathy based on a convolutional neural network using retinal fundus images. In: Artificial Neural Networks and Machine Learning (ICANN), 2017

Honors & Awards

2022 **Talk**, Center for Human-Aware AI seminars - Self-Supervised and Continual Learning
2021 **Talk**, Continual-AI reading group - Self-supervised training enhances online continual learning.
2018 **Talk**, Everis Talks webinar series - Computer Vision
2016 **Research Grant**, Offered by UNI for Diabetic Retinopathy detection research.
2016 **Student President**, Artificial Intelligence and Control Systems Research Group (GISCIA) at UNI

Languages

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