Roger Huauya Mamani

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https://rogerhuauya.github.io/

Research interest

I am interested in control algorithm programming and robotics control theory. At present, I am working in a drone software development by making the firmware and hardware. My research is grounded in robotics and computer vision projects in which involve developing autonomous algorithm tasks for robots.

Experience

Mechatronics Engineer, MDP consulting — Jun 2020–now

Currently, I am working at MDP consulting SAC. I am involved in a drone project development in order to solve real world problems using technology. This project demands a huge expertise in C, C++ and Python programming. The firmware we have been developing is being built from scratch in order to have full control of the source code. Additionally, I am in charge of developing the electronic design, control system algorithms and computer vision algorithms.

- Computer vision algorithms for drone applications
- Low level embedded programming in C using STM32 microcontrollers
- Electronic design of flight controller prototypes

Machine learning Researcher, LIIARPI - Universidad Nacional de ingenieria — 2017–2019

In the laboratory of artificial intelligence, robotics and image processing (LIIARPI), I worked in 3 formative research projects financed by the vice-rectorate of research of the National University of Engineering. These projects were developed by applying digital image processing and artificial intelligence. Two of the projects I worked on have been published.

- Development of software application to aid modelers to detect geometric elements in pointclouds
- Project funded by Innovate, funding organization for start-ups supported by Peruvian government

Education

Bachelor Degree of science in Mechatronics, National University of Engineering — 2015-2019

- Rank: 2/46 (top 5%)
- GPA: 15.875 out of 20 (A+ in international literal scale)
- Top 5% in all the university terms

Service and leadership

Committee member, Peruvian Association of Hemophiliacs — since March 2021

- Community manager of social network
- Development of online events to spread knowledge

Honors and Awards

IEEEXtreme 15.0, Ranked 51th with team MiracleContact out of 5570 teams worldwide — 2021

IEEEXtreme 13.0, Ranked 84th with team MiracleContact out of 4134 teams worldwide — 2019

Valorisation

AWS Machine learning foundation, Udacity (verified cert.) — October 2021

The Bits and Bytes of Computer Networking, Coursera (verified cert.) — October 2020

2020 CIFAR Deep Learning + Reinforcement Learning Summer School, Mila — August 2020

Digital Signal Processing 2: Filtering, Coursera (verified cert.) — August 2020

Fundamentals of Reinforcement Learning, Coursera (verified cert.) — June 2020

Competences

Languages

- Spanish - *native speaker*
- English (*advance proficiency*, TOEFL ibt score: 105, rd: 28, ls: 26, sp: 24, wr: 27)
- French - *intermediate proficiency, Delf B1*

Programming languages Advanced level: *C/C++, Python, Java, Golang, C#, Matlab*

INTERNSHIPS

Japanese Peruvian Center for Seismic Research and Disaster Mitigation - CISMID Summer 2018
I created a software in Python to connect different models of accelerometers to the main CISMID accelerometer network. I developed a low-cost accelerometer system (SW/HW) using a MPU6250. I gained a strong foundation in computer networks, internet of things and Python programming

RESEARCH PROJECTS

Development of a software application for risk analysis in floods caused by alluviums and urban growth through image processing techniques and automatic learning Mar. 2019 - Dec. 2019
Formative undergraduate research in which the main task was to analyze different satellite images of the Peruvian Satellite PeruSAT-1 and develop an risk analysis map and indicate the likelihood of possible floods on urban areas. This project was funded with about 9000 US dollars by vice-rectorate of Research at the National University of Engineering - Peru

Development of neural generative adversarial neural networks applied in the generation of biomedical brain imagery obtained by magnetic resonance Mar. 2018 - Dec. 2018
Formative undergraduate research primarily oriented in data augmentation using Generative Adversarial Networks (GAN). The database focused was brain imagery obtained by a local hospital. This project was funded with about 8300 US dollars by vice-rectorate of Research at the National University of Engineering - Peru

Detection of cancerous lung nodules in low-dose CT images using digital image processing and machine learning Mar. 2018 - Dec. 2018
Formative undergraduate research in which the main task was to analyze different satellite images of the Peruvian Satellite PeruSAT-1 and develop an risk analysis map and indicate the likelihood of possible floods on urban areas. This project was funded with about 9000 US dollars by vice-rectorate of Research at the National University of Engineering - Peru

PUBLICATIONS

[1] A Comparison of Machine Learning Classifiers for Water-Body Segmentation Task in the PeruSAT-1 Imagery. *Brazilian Technology Symposium, 2019*
Roger Huauya, Fidel Moreno, Jonathan Peña, Erwin Dianderas, Antoni Mauricio, and Jose Díaz.
doi: 10.1007/978-3-030-57548-9_6

[2] A brief survey on deep learning based methods for lung cancer classification using computerized tomography scans. *IEEE CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies (CHILECON) 2019*
Borja, Mario G. Borja, Roger Huauya, and Cristian Lazo.
doi: 10.1109/CHILECON47746.2019.8987722

[3] High-resolution generative adversarial neural networks applied to histological images generation. *International Conference on Artificial Neural Networks (ICANN), 2018*
Mauricio, Antoni, Jorge López, Roger Huauya, and Jose Diaz.
doi: 10.1007/978-3-030-01421-6_20

REFERENCES

1. Dr. Jose Carlos Diaz Rosado
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2. Mr. Ricardo Raul Rodriguez Bustinza
   Associate Researcher, Mechanics Faculty, National University of Engineering - Peru
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3. Mr. Percy Alfredo Enciso Fuentes-Rivera
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