José Manjarrés

Ph.D. in Electrical and Electronics Engineering

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Education

2016-07 - 2020-11 — **Ph.D. in Electrical and Electronics Engineering**
Universidad del Norte, Barranquilla, Colombia

2009-01 - 2014-11 — **B.E. in Electronics Engineering**
Universidad del Norte, Barranquilla, Colombia

2010-01 - 2014-11 — **B.S. in Mathematics**
Universidad del Norte, Barranquilla, Colombia

Work Experience

2023-08 - Present — **Assistant Professor**
Point Loma Nazarene University, San Diego, CA, USA

- Taught analog and digital electronics, electromagnetism, and other electrical/computer engineering courses using hands-on and project-based approaches.

2020-07 - 2023-07 — **Assistant Professor**
Olivet Nazarene University, Bourbonnais, IL, USA

- Taught Python and Matlab programming, machine learning, and robotics using hands-on and project-based approaches.
- Directed the robotics club to complete a self-driving vehicle capable of detecting pedestrians and traffic signs with a Raspberry Pi.
- Implemented a face-recognition-based system to control access to a lab facility using embedded systems and TFLite.
- Led a research project to apply machine learning to astronomical data for asteroid detection combining unsupervised and supervised learning.

2022-03 - 2022-12 — **Cloud Computing Consultant**
Kiese Technologies

- Created microservices with AWS Lambda, API Gateway, Step Functions, and Cognito for automatic client pool creation.

2019-08 - 2020-05 — **Visiting Scholar**
Duke University, Durham, NC, USA

- Developed a Wi-Fi-based sensing system using data analysis of time series, dimensionality reduction, feature engineering, and deep learning.
- Finished doctoral research on deep learning applied to energy-harvesting wearable devices for human activity recognition.

2018-06 - 2019-06 — **Web Developer and Administrator**
Cru Colombia

- Developed a website for monthly staff reports and payroll management using PHP, Javascript, and MySQL.

2015-01 - 2019-07 **Graduate Teaching Assistant and Researcher**
Universidad del Norte, Barranquilla, Colombia

- Taught and advised undergraduate students in capstone projects with energy harvesting and applied machine learning.
- Led projects implementing machine learning algorithms in mobile devices for real-time activity recognition.
- Excelled in advanced courses on machine learning, natural language processing, wireless sensor networks, control systems, and robotics.

Skills

- **Programming languages:** Python, Matlab, and C++
- **Machine Learning Algorithms:** Linear regression, Logistic Regression, Decision Trees, Support Vector Machines, ensemble learning algorithms, PCA, k-Means, Gaussian Mixtures, neural networks, and transfer learning.
- **Machine Learning Libraries:** TensorFlow and Scikit-learn
- **Data Analysis Tools:** Pandas, NumPy, Matplotlib
- **Databases:** MySQL and MongoDB.
- **Cloud Computing Platforms**: AWS
- Self-led Research
- Control version with Git

Publications

- Manjarres, J.; Lan, G.; Gorlatova, M.; Hassan, M.; Pardo, M. *Deep Learning for Detecting Human Activities From Piezoelectric-Based Kinetic Energy Signals*. IEEE Internet of Things Journal; 2022.
- Manjarres, J.; Pardo, M. *An Energy Logger for Kinetic-Powered Wrist-Wearable Systems*. Electronics; 2020; Vol. 9.
- Manjarres, J.; Narvaez, P.; Gasser, K.; Percybrooks, W.; Pardo, M. *Physical workload tracking using human activity recognition with wearable devices*. Sensors (Switzerland); 2020; Vol. 20.
- Manjarrés, J.; Dasuki, K.; Parody, H.; Gomez, O.; Pardo, M. *Monitoring System for Kinetic Energy Harvesting in a Mobile Platform*. In Proceedings of the 2019 IEEE International Symposium on Circuits and Systems (ISCAS); 2019; pp. 1–5.
- Manjarrés, J.; Russo, V.; Peñaranda, J.; Pardo, M. *Human Activity and Heart Rate Monitoring System in a Mobile Platform*. In Proceedings of the 2018 Congreso Internacional de Innovación y Tendencias en Ingenieria (CONIITI); 2018; pp. 1–6.

Awards and Honors

- 2016 Universidad del Norte doctoral scholarship
- 2019 National doctoral scholarship from the Colombian Ministry of Science
- 2020 Cum laude doctoral thesis