Sheila Alemany Blanco

Fast-learner passionate about pursuing higher education that will allow me to contribute and develop ideas using artificial intelligence that will be globally impactful.

Education

Bachelors of Science in Computer Science *Fall 2014 - Spring 2019*
Florida International University, Miami, FL - CGPA: 3.74/4.00

Bachelors of Science in Mathematics *Fall 2014 - Spring 2019*
Florida International University, Miami, FL - CGPA: 3.74/4.00

Research Experience

Research Assistant, *Research Experience for Undergraduates at FIU* *Summer 2017 - Present*

- Sponsored by the National Science Foundation and the Department of Defense.
- Currently building a lightweight, scalable blockchain open-source framework on the Hyperledger Sawtooth platform suitable for resource-constrained devices in the Internet of Things with a publication in progress.
- Assisted in the development and implemented the simulation of a prediction technique for mobile wireless sensor networks whose main focus was to improve space complexity while maintaining the behavioral information of sensor data. Direct contribution was the use of dynamic time warping as the similarity metric between abstracted data, and a support vector machine for trend prediction.
- Improved upon the work done as a Research Assistant for the Army Educational Outreach Program, including making the method more robust with less user-defined parameters.
- Formally applied category theory to data cleaning for mobile wireless sensor networks by finding ways the decision-making method would benefit from categorically organizing the data each sensor receives.
- Two publications and prototypes completed thus far under Dr. Niki Pissinou as my advisor.

Cyber Analytics & Decision Systems Research Intern, *MIT Lincoln Laboratory* *Summer 2018*

- Conducted exploratory data analysis to assist in the process of improving machine learning approaches that predict cyber-attacks. Contributed to the existing set of metrics by proposing new evaluation techniques that use statistical methods, natural language processing, and clustering techniques.
- Summer internship overseen was by Dr. Joseph Zipkin and Dr. Amy Hughes.

Research Assistant, *Army Educational Outreach Program at FIU* *Fall 2016 - Spring 2017*

- Implemented and simulated a technique for data cleaning in mobile wireless sensor networks that used an economic model for determining the trustworthiness of candidate sensors to improve data accuracy. Simulated using MATLAB and the BonnMotion Mobility Generation and Analysis Tool.
- Publication was completed and this project was supervised by Dr. Niki Pissinou.

Teaching & Mentorship

Learning Assistant, *School of Computing and Information Sciences (SCIS) at FIU* *Fall 2017 - Present*

- Assisted during hands-on projects in class and held office hours for a Computer Organization course in order to promote and expedite student learning throughout the semester. Main course topics are caching, design of memory and microprograms using MIPS, and parallelism using CUDA.

Mentor, *Big Sisters Mentorship Program at FIU* *Fall 2017*

- Guided a 10th grade student through the basics of JavaScript using Code.org's App Lab in a two hour sitting then connected with her weekly for the next three weeks to supervise her progress on completion of the app and address any possible questions while motivating her to pursue higher education in STEM.

Tutor, *Academic Success Initiative at FIU* *Fall 2015 - Summer 2016*

- Facilitated subject understanding for students in group sessions or scheduled one-on-one meetings outside of class for Fundamentals of Computer Systems and Discrete Mathematics courses.

Self-Driven Projects

Deep Learning Nanodegree Foundations, *Udacity* *Fall 2017*

- Learned the foundations of deep learning using neural networks to complete tasks such as image classification with convolutional neural networks, speech/text translation with recurrent neural networks, and image generation using generative adversarial networks.

Artificial Intelligence Project Lead, *Upsilon Pi Epsilon SparkDev at FIU* *Fall 2017*

- Predicted the trajectory path of hurricanes using a recurrent neural network (RNN). Lead a group of six students to complete this project in nine weeks using Python and Keras API.
- This project led to an independent research project where I employed a novel method that utilized an RNN and fine grid to learn the nonlinear behavior of hurricanes and more accurately predict hurricane trajectories.

Neural Gonna Give You Up Team, *UHack 2017* *Fall 2017*

- Applied an RNN using Python and Keras to manipulate any musical beat into Rick Astley's *Never Gonna Give You Up*. Won Best Artificial Intelligence and Machine Learning Hack.

Technical Strengths

Computer Languages	Python, C, CUDA, Java, Assembly (LC3 and MIPS), F#, Prolog, SQL, HTML, CSS, JavaScript, PHP
Python Libraries	NumPy, Pandas, Keras, TensorFlow, Scikit-learn, NLTK, Jupyter Notebook
Software/Version Control	MATLAB, Virtual Box, AutoCAD, Git, LaTeX
Spoken & Written	Fluent in English and Spanish

Awards & Honors

- 2018 Computing Research Association (CRA) Outstanding Undergraduate Researcher Finalist
- 2017 FIU SCIS Outstanding Undergraduate Student Research Award
- 2017 FIU SCIS Scholarship to attend the Grace Hopper Conference
- 2016 Great Minds in STEM (GMiS) Scholar
- Member of Upsilon Pi Epsilon honor society for the computing and information technology disciplines (Inducted Fall 2016)

Publications

- **Alemany, S.**, Beltran, J., Perez, A., & Ganzfried, S. (2019, February). Predicting Hurricane Trajectories using a Recurrent Neural Network. In *2019 AAAI Conference on Artificial Intelligence*.
- Aleman, C. S., Pissinou, N., **Alemany, S.**, & Kamhoua, G. (2018, December). Using Candlestick Charting and Dynamic Time Warping for Data Behavior Modeling and Trend Prediction for MWSN in IoT. In *2018 Third Workshop on Real-time & Stream Analytics in Big Data & Stream Data Management*. IEEE.
- Aleman, C. S., Pissinou, N., **Alemany, S.**, & Kamhoua, G. (2018, August). A Dynamic Trust Weight Allocation Technique for Data Reconstruction in Mobile Wireless Sensor Networks. In *2018 International Conference On Trust, Security And Privacy In Computing And Communications (TrustCom)* (pp. 61-67). IEEE.
- Aleman, C. S., Pissinou, N., **Alemany, S.**, Boroojeni, K., Miller, J., & Ding, Z. (2018, March). Context-Aware Data Cleaning for Mobile Wireless Sensor Networks: A Diversified Trust Approach. In *2018 International Conference on Computing, Networking and Communications (ICNC)* (pp. 226-230). IEEE.

Presentations

- **Alemany, S.** (2018, February) "Predicting Hurricane Trajectories using Recurrent Neural Networks" at a seminar for the National Oceanic and Atmospheric Administration (NOAA) presenting my work on hurricane path predictions with the application of recurrent neural networks. Miami, FL.
- Miller, J., **Alemany, S.**, Garcia, M. (2017, March) "The Magic of Discovery Lab" at the 2017 Conference of Undergraduate Research at FIU on my work in data cleaning in mobile wireless sensor networks. Miami, FL.
- Herlle, M., **Alemany, S.**, Camacho, A., Santoyo, A., Defrias, N., Lopez, J., LaRusso, B. (2016, March) "The Academic Success Initiative: A Transformative Experience in the School of Computing and Information Sciences" at the 2016 Conference of Undergraduate Research at FIU on effective tutoring techniques for STEM courses. Miami, FL.