Daniel Alejandro Noble Hernandez

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EDUCATION

The University of Texas at Austin Master of Science in Computer Science **Expected Graduation:** May 2021
College of Natural Sciences GPA: 3.9/4.0

Coursework: Machine Learning, Neural Networks, Neural Computation, Decision Analysis, Cybersecurity Policy/Law

The University of Texas at Austin Bachelor of Science in Biomedical Engineering May 2019
Cockrell School of Engineering GPA: 3.5/4.0

Coursework: Algorithms, Operating Systems, Matrix Theory, Discrete Mathematics, Embedded Systems, Computational Methods, Numerical Methods, Software Design, Signals and Systems Analysis, Data Structures

EXPERIENCE

Sandia National Laboratories – *Math & Analytics R&D Intern*, Austin, TX May 2020 – Present

- Build an automated object detection software package in Python that uses CNNs to locate and classify atomic defects on scanning tunneling microscopy images of silicon surfaces, achieving 98% test accuracy.
- Wrote and presented a research poster on work at an intern symposium, and presented related research papers.

Center for Computational Oncology – *Research Assistant*, Austin, TX May 2017 – May 2019

- Wrote MATLAB scripts that extracted and tested features of MRIs of pancreas in patients with type 1 diabetes (T1D) to determine the best predictors for the disease, generating ROC curves for each.
- Designed a random forest machine learning algorithm to classify MRIs as belonging to someone with T1D, without T1D, or in a pre-diabetic stage based on these extracted predictive features.

Analytics Advisory Group – *Data Analyst Intern*, Austin, TX June 2018 – August 2018

- Wrote SQL stored procedures and functions to generate supplemental files for the client, Austin Regional Clinic.
- Worked in Agile to redesign the client's data warehouse build procedure to create schemas and populate tables.

Center for Cardiovascular Simulation – *Research Assistant*, Austin, TX January 2017 – May 2018

- Grew heart cells for use in experiments, prepared cell culture media, and fabricated VIC-hydrogels for simulated testing of heart valves and study of heart disease progression.
- Wrote MATLAB scripts to analyze different parameters of images of the heart cells embedded in hydrogels.

ACADEMIC PROJECTS

Brain Tumor Segmentation (BraTS) and Survival Prediction Model March 2020 – May 2020

- Developed a generative adversarial network that could segment tumors in MRI scans using the BraTS dataset.
- Designed a neural network and a support vector machine that could separately predict the survival rate of patients.
- Beat the existing model's validation data accuracy of 0.448 with an accuracy of 0.576.

Transpulmonary Pressure Monitoring System August 2018 – May 2019

- Researched and designed an innovative multi-balloon catheter transpulmonary pressure monitoring device.
- Built and tested prototypes of an esophageal sensor, using independent balloons and sensors.
- Programmed a microcontroller in C to interface the pressure sensor with a ventilator and an LCD screen to display waveforms of esophageal, airway and transpulmonary pressure.

ACTIVITIES AND AWARDS

Tutor, Eastside Memorial High School September 2016 – May 2019
Chair of Public Relations, Men Can End September 2017 – May 2018
Mentor, Engineering Honors Program September 2016 – May 2017
Engineering Honors Scholarship Fall 2015 – May 2019
University Honors (4 semesters) Fall 2015 – Fall 2016, Fall 2018

SKILLS

Computer Skills: Python (NumPy, scikit-learn, TensorFlow, PyTorch), C, Java, MATLAB, R, ARM Assembly, SQL, Linux
Languages: Native Proficiency in English and Spanish; Intermediate Proficiency in French