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, Algorithms, Operating Systems, Data Structures, Matrix Theory

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

Coursework: Discrete Math, Embedded Systems, Computational Methods, Numerical Methods, Software Design

EXPERIENCE

HuthLab, The University of Texas at Austin – *Research Assistant*, Austin, TX August 2020 – Present

- Writing Master's thesis on the extension and evaluation of Dr. Alexander Huth's PrAGMATiC, a probabilistic and generative model of areas tiling the human brain cortex.

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.

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

Contact Tracer, Dell Medical School June 2020 – Present
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