Noel Elias

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Education

- **The University of Texas at Austin** — Austin, Texas
  Bachelor of Science - Computer Science and Mathematics; GPA: NA — *August 2021 - Present*
  Courses: *Data Structures, Linear Algebra, Honors Vector Calculus, Discrete Mathematics*

Technical Skills

- **Languages:** Python, Java, C/C++, MATLAB, JavaScript, SQL
- **Certifications:** Deep Learning Sequence, Machine Learning, Cryptography I, MATLAB for Quantitative Analytics
- **Frameworks/Tools:** AWS, Scikit, NLTK, TensorFlow, Unity, Git, Andriod Studio

Experience

- **Software Engineering Intern** — Nov 2018 - August 2021
  Thinkery Children's Museum — *Austin, TX*
  - Led the development and production of an AR app implementing MIT Media labs computational thinking strategies to teach students programming alongside Thinkery curriculum specialists team.
  - Implemented Vuforia Augmented Reality SDK for feature tracking and detection, Unity Scripting APIs in C# and JavaScript for 3D animations, and Android Studio for the building the app framework.
  - App currently has over 100+ daily users and is being deployed in STEM museums and schools all over Austin.
- **Undergraduate Research Intern** — Jan 2018 - August 2020
  The University of Texas at Austin - Ellington Lab — *Austin, TX*
  - Worked on various research projects under Dr. Andrew Ellington developing diagnostics tools to detect fecal particles in water as well as HIV levels in infants.
  - Used Python's SciPy and scikit-learn libraries to conduct interpolations, multidimensional image processing, and model classifications on amplification results.
  - Visualized 3D RNA target sequences and primers using Seaborn, Pandas, and Biopython libraries.
  - Built automated web scrapping tool in Java to run genomic sequencing on viable primers sets for LAMP amplification.
  - Led and and designed successful assays using LAMP & CRISPR techniques in wet-lab research that were published and presented at the international iGEM conference.

Projects

- **Texas COVID-19 Projections Web App (Deep Learning, Web Development)**
  - Constructed dynamic web app to create projections for COVID-19 cases, tests, and active infections per Texas county.
  - Created, tested, and validated LSTM neural networks, DBSCAN unsupervised clustering algorithms, and regression algorithms to create models to predict the spread of COVID-19 using a variety of contributing factors with a 92% accuracy.
  - Identified major sources of error, and helped optimize model to increase performance through hyper parameter tuning, dropout, and pruning techniques that reduced loss.
  - Devised automated pipeline with AWS in the back end and Dash on the front end for Heroku web app.
  - **Used:** AWS (EC2, S3 storage, and Elastic Beanstalk), TensorFlow, scikit-learn, Heroku, Dash, cron
- **Kaggle - Contributor (Machine Learning, Data Science)**
  - Modeled large data sets in global competitions using accurate machine learning models to solve problems like natural language processing, water toxicity, house pricing, etc. placing top 0.05% globally.
  - Completed extensive coursework and training in data visualization, pandas, feature engineering, advanced SQL, NLP, and Game AI & Reinforcement Learning.

Publications

- **Robust Estimation of Bacterial Cell Count from Optical Density** - Jacob Beal, Natalie G. Farny, iGEM Interlab Study Contributors. Published in Nature of Communications Journal (2020)

Awards

- Finalist - Texas Science & Engineering Fair |1st Place - Austin Energy Science Fair Competition - May 2020
- President's Volunteer Service Award - 2020