**Nathan A. Riojas**

**The University of Texas at Austin, 2016**

*BS, Mechanical Engineering*

*Minor, Computer Science,*

*Certificate, Engineering Robotics*

*GPA, 3.6*

**Georgia Institute of Technology, 2022**

*MS, Computer Science*

*GPA, 4.0*

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**Technical Projects**

***Machine Learning For Trading, OMSCS* (**2021**) *Python***

* Implemented decision tree, random tree, and random forest learners to analyze overfitting and performance
* Developed a portfolio optimizer using Numpy and Pandas to manipulate stock data and optimize allocations for maximum Sharpe ratio using the scipy.optimize module

***Artificial Intelligence for Robotics, OMSCS* (**2020**) *Python***

* Coded localization and mapping software to implement a GraphSLAM algorithm based on given sensor data
* Implemented search algorithms (including A\*) to determine the shortest path between points subject to varying movement costs
* Programmed Kalman and Particle filters to localize moving objects with noise and navigate objects accordingly
* Developed and tuned PID controls to smooth an autonomous robot’s course

***MMAxCalc Mobile Application, Mobile Computing* (**2016**) *Java, SQLite***

* Developed both front end and back end of Android app to calculate user punching power utilizing accelerometer data from a wearable device
* Created a database of user profile management for metrics tracking

***Visualization Projects Team Lead, Elements of Data Visualization* (**2015**) *R,* *SQL, Tableau, Shiny Package***

* Developed connectors to Oracle database to query data to effectively present data trends
* Researched and built an interactive web app using the Shiny R Framework

**Work Experience**

03/17–Present **Software Development Engineer in Test, Codeware Inc.**

* Developed testing frameworks using Python and Javascript to mimic testing functionality within Inspect dialogs incompatible with native TestComplete automation suite functions
* Extended functionality of existing automated tests written within in-house TestComplete automation suite to streamline UI testing and calculation verification
* Iteratively collaborated with software developers to implement new software features
* Improved software robustness through bug identification, replication, and root cause analysis
* Verified alignment of software calculations with international ASME design standards

06/16–03/17 **Equipment Engineer, NXP Semiconductors**

* Identified upgrades to perform on robotic equipment to reduce labor required during weekly system shutdown procedures and increase the factory’s semiconductor wafer output

02/15–01/16 **Research Engineer, Biomechanics Experimental Laboratory**

* Designed biaxial testing system to analyze heart tissue to aid in surgical repair of the mitral valve
* Minimized redesign changes to incorporate load cells and actuators using SolidWorks

05/15–10/15 **Research Engineer, REWIRE Laboratory**

* Fabricated a low-cost gait rehabilitation robot prototype by using a 12-bar linkage mechanism which could be implemented at 10% of the cost of modern gait training robots
* Modeled the robot based on motor input and robot output velocities through differentiation of the motion path of linkages using Matlab

**Languages / Tools**

*Python (Numpy, Pandas, SciPy), Matlab, Javascript, Java, SQL, SQLite, R (Shiny), HTML/CSS/Bootstrap, TestComplete, Jupyter, Pycharm, Miniconda, Android Studio*

**Publications**

Duenner, A., Yao, T., De Hoyos, B., Gonzales, M., Riojas, N., and Cullinan, M. (October 10, 2016). "A Low-Cost, Automated Wafer Loading System With Submicron Alignment Accuracy for Nanomanufacturing and Nanometrology Applications." ASME. *J. Micro Nano-Manuf*. December 2016; 4(4): 041006