Matthew Torres

Matt-torres.github.io matt.torres@aggiemail.usu.edu (951) 760-6741

Physics graduate seeks STEM employment/internships

EDUCATION

B.S, Physics (Professional Emphasis); Mathematics Minor May 2018
Utah State University (USU), Logan, UT Department GPA: 3.7

EXPERIENCE

Webmaster August 2015 – September 2016
Civilized Frontier Temecula, CA

- Established and maintained a website using GitHub and Sublime Text 2 for 100 members of the local STEM creatorspace
- Converted raw images and layouts from a graphic designer into CSS/XHTML themes
- Determine appropriate architecture, and other technical solutions, and make relevant recommendations to clients Communicated to the Project Manager with efficiency and accuracy any progress and/or delays. Engage in outside-the-box thinking to provide high value-of-service to clients
- Collaborated with staff and teams to develop, format and deploy content

Astro Physics Research November 2017 - present
Utah State University Logan, UT

- Researched various black hole solutions to Einstein's field equations
- Briefed and planned with team members and mentors about the status of the project and how to optimize the code to be developed
- Developed Mathematica code to verify over 20 black hole solutions to the field equation
- Catalogued Mathematica code to Digital Commons for future researchers to have a quick verification process when testing novel stress-energy momentum tensors

Microgravity Research Team – Simulation Team November 2017 – present
Utah State University Logan, UT

- Collaborated with fellow team members on mathematical model design and software implementation
- Directed software (MATLAB) implementation for orbital dynamics simulation; simulating magnetic hysteresis, gravity gradient and aerodynamic passive stabilization
- Passive stabilization within suggested roll, pitch and yaw degrees per second NASA CubeSat specifications

PROJECTS

Stock Market Quantitative Analysis

- Formulated original python code to fetch online minute tick data from over 2,000 publicly traded ETF's and stocks
- Built a custom dataset with methods and properties for the data to optimize analysis and minimize risk
- Performed complex quantitative analysis using public indexes and many other techniques to create a new trading index which has yielded a 92% trade success rate

Transcranial Direct Current Stimulation Device

- Researched, designed and soldered a circuit for a TDCS device using a potentiometer, current regulator diodes and many other electrical/medical components
- Tested different electrode placements on myself and significantly decreased migraine frequency and intensity (discontinued use after 1 month due to lack of medical studies on side effects)

Acoustic Levitation

- Designed and 3D printed a transducer housing to produce acoustic levitation
- Wrote a proposal which planned out the entire project including a resource budget, time allocation, research methodology, etc., and was granted $700 for the project
- Implemented original python code to model the 3D acoustic pressure profile for any transducer setup to predict size and mass of objects that can be levitated with a certain frequency/setup

- Statistical analysis of the model to the experimental data using the chi squared goodness-of-fit test which showed the critical value was less than the chi squared test statistic, meaning the model accurately predicted the experimental data.

ACHIEVEMENTS & ACTIVITIES

Varsity Letter Lacrosse/Football 2011 & 2012, Temecula Valley HS
AP Scholar 2012, Temecula Valley HS
Volunteer Math, Physics and Coding Tutor, Utah State University
Cal State Long Beach 2016 Hackathon 2nd Place, California State University Long Beach
Codeingame September Hackathon 1st Place, Online
Free Code Camp Full Stack Certification in progress, Online
Deans List Spring/Fall 2013,2014, 2016, 2017,2018 Fall 2015, 4 Colleges

PROGRAMMING LANGUAGES

Python	MATLAB	Mathcad
C	C#	Java
JavaScript	Mathematica	HTML
CSS	Swift	Simulink