SP

SAAJAN RAJESH PATEL

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Education

Georgia Institute of Technology, Howey School of Physics **GPA: 3.97**

- Dean's Scholarship to the College of Sciences, Faculty Honors *May 2022*
- Bachelor of Science in Physics, Minor in Aerospace Engineering
- 2022 Hitohiro Fukuyo Award in Physics

Experience

Georgia Institute of Technology Trinity Air Shower Imaging Telescope **Atlanta, Georgia**

Undergraduate Researcher *May 2021–May 2022*

- Designed three prototype light concentrators using a C++ optics framework for the Trinity Air Shower Imaging Telescope, while managing conflicting expectations from supervising teams
- Simulated concentrator using Monte Carlo techniques, and improved performance by iteratively optimizing the Bézier curves which defined the shape
- Presented proposals and reported progress to a team of Georgia Tech researchers, as well as an international team overseeing the general optics
- Brought design into production stage, weighing cost and ease of construction against system performance

Georgia Institute of Technology Vertically Integrated Project **Atlanta, Georgia**

Undergraduate Researcher *August 2019 – December 2019*

- Collaborated with three fellow undergraduates to construct Lithium Ion cell batteries incorporating a reduced graphene oxide anode
- Examined the charging mechanisms and electrochemical properties of integrating graphene, while exploring the current challenges and limits of application compared to theoretical modeling

Sunshine Pediatrics **Rock Hill, South Carolina**

Temporary Employee *Summers 2017–2019*

- Managed a 1000+ patient chart inventory, designed dozens of referral forms, made dozens of calls daily focusing on patient needs
- Oversaw office upkeep and organizational tasks, streamlining the electronic medical records database

Projects

End-to-End Data Pipeline: Combined CNN-LSTM Model for Stock Price Forecasting *June 2022 – August 2022*

Link: https://github.com/saajanrpatel/Portfolio

- Constructed a data pipeline that pulls two years of historical data for specified stocks from the Polygon API and uploads to/updates a cloud database (AWS). Data is then transferred from the database to a visualization program, and finally to a combined CNN-LSTM neural network model, which recommends buy/sell points for a stock by predicting the close price one day into the future
- Automated large portions of the pipeline and optimized the neural network through hypothesis testing techniques
- Ensured foundation for future models, as the framework to pull and process stock data is fully integrable with other models

Pharma Web Scraper Tool *March 2021*

- Formulated a Python web-scraping algorithm alongside a fellow undergraduate to pull news events from dozens of pharma company websites, enabling quicker reactive stock trades

Global Space Balloon Challenge *August 2018 – May 2019*

- Oversaw tracking/recovery procedures for a team of eight undergraduates designing and launching payloads via High Altitude Balloon up to 100,000 ft.

Skills

Technical: Python, SQL

Key Concepts: Machine Learning, Probability & Statistics, Linear Algebra, Differential Equations, Multivariable Calculus

Languages: English, French, Chinese, Greek

Soft: Self-motivation, Collaboration, Critical Observation, Patience, Open-mindedness, Adaptability

Creativity: Classical Piano and Violin, Photorealistic Sketching, Wood Carving