SHUAICHENG (ALLEN) TONG

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EDUCATION

University of California, Los Angeles (UCLA) Los Angeles, CA

Bachelor of Science, Mathematics of Computation; Minor in Statistics Expected June 2024

- GPA: 3.92 (Dean's Honors List, Upsilon Pi Epsilon (computer science honor society))
- Relevant Coursework: Optimal Control (Individual Studies), Network Science & Dynamical Systems, Data Theory, Numerical Analysis, Probability Theory, Data Analysis and Regression, Computational Linear Algebra, Object-oriented Programming in C++ (grader), Python for Data Science

PROJECTS

Network Analysis for Marvel Superheroes | *Project Lead* October 2022 – Present

- Pre-processed data to construct a four-layer temporal network for the Avengers series using Python NetworkX, where each layer contains superheroes who appeared in a comic book development era.
- Conducted EDA and selected PageRank centrality and Eigenvector centrality as measurements of hero importance due to their compatibility with the network.
- Performed supra-centrality analysis with selected measurements to find leading superheroes of each era by tuning the strength of the coupling parameter.
- Applied the Louvain community detection algorithm to discover a shift in creative styles during the 1990s; submitted code, drafted a report, and created a presentation.

Emory University Computational Mathematics | *Research Assistant* May 2022 – Present

- Worked in a group of 3 to investigate efficient algorithms for image recovering.
- Trained implicit neural networks to deblur images using PyTorch; achieved 10% better image quality compared to traditional methods while using 50% less computational power.
- Presented a poster to a group of professors and graduate students; achieved runner-up out of 10 teams.
- Submitted code, drafted a manuscript, and created a website to showcase preliminary findings that are used by Emory faculty; a preprint is in progress.

League of Legends Analysis | *Data Analyst* January 2022 - March 2022

- Conducted EDA using R by cleaning a set of over 25,000 League of Legends game play data to select significant variables in predicting team gold difference.
- Eliminated multicollinearity by calculating Variance Inflation Factors to build an initial linear model; tested its validity by conducting residual analysis and A/B test.
- Built the final model by using a combination of variable selection algorithms to reduce the initial model, focusing on validity and simplicity by plotting marginal model plots.

EXPERIENCE

DataRes at UCLA | *Deep Learning Researcher* March 2022 – Present

- Led presentations about current works and limitations of graph neural networks to a group of 12 colleagues.
- Contributed to an article featured in the headlines of Neo4j that uses Deep Graph Neural Network to classify team social relationships.

UCLA Athletics | *Senior Data Analyst* October 2021 – Present

- Maintained a Microsoft Azure database; built a pipeline and wrote data pullers using Python.
- Enabled automatic athlete profile updates; created an interactive dashboard using Power BI.
- Queried and analyzed data using SQL to discover a time-based gap in jump performance; presented data-driven recommendations on practice routines to coaches and athletes.

UCLA International Student Go Local Petition | *Chief Sponsor* July 2020 - October 2020

- Proposed a dual-enrollment initiative that enables international students to study at UCLA's partner universities during the COVID-19 pandemic.
- Headed a 6-person team that advertised the initiative on social media; reached out to student organizations and achieved over 8,500 reads on a blog post.
- Composed an open letter and petition to university administrators; gathered over 400 student signatures; received a personal reply and compliment from Adriana Galván, Dean of Undergraduate Education.

SKILLS

- Coding: Python (Proficient in NumPy, Pandas, Seaborn, Scikit-learn), MATLAB (Proficient), Terminal, Git
- Methods: Gradient Descent, Topic Modeling, Regression Analysis, Model Building