**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