**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: 3.91 (Dean’s Honors List, [Upsilon Pi E](https://upe.seas.ucla.edu/requirements)psilon (computer science honor society))
* Relevant Coursework: Optimal Control (Individual Studies), Social 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**

**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](https://drive.google.com/file/d/1Dc9T6hDFlWyob-A39Vw9cXmOqXXKgo5Z/view?usp=sharing) to a group of professors and graduate students; achieved runner-up out of 10 teams.
* Submitted [code](https://github.com/lliu58b/Jacobian-free-Backprop-Implicit-Networks), drafted a [manuscript](https://drive.google.com/file/d/1pbrVO5L-czau5Pfb77WPNoQpbT5CrTK7/view?usp=sharing), and created a [website](https://www.math.emory.edu/site/links/cmds-reuret/projects/2022-implicit/?syt=Ptcg) 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 preliminary data analysis 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](https://ucladatares.medium.com/deep-learning-on-graphs-integration-of-dgl-and-neo4j-dbms-for-social-analysis-321563eb900f) featured in the [headlines of Neo4j](https://neo4j.com/blog/this-week-in-neo4j-slack-integration-alteryx-machine-learning-deep-learning-on-graph-and-more/) that uses [Deep Graph Neural Network Library](https://github.com/datares/neodgl) to classify team social networks.

**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 file 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.

**Programming with R Final Project** | *Data Analyst* June 2021 - August 2021

* Conducted preliminary data analysis by cleaning and wrangling a set of over 200,000 data from 1980 to now.
* Discovered traffic accidents are frequent at night in southern states despite similar population size compared to other parts of continental United States.
* Developed an interactive web app with Shiny R that displays the location and time of traffic accidents in Florida during user-specified periods.

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

* Proposed a [dual-enrollment initiative](https://docs.google.com/document/d/1kxveFFABleYAKl-atk9NyCblgCksaJNruF8OKwNE0B0/edit) 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