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## Education

- **Macalester College**, St.Paul, MN expected May 2021
  - B.A. in Computer Science, Pure Mathematics
  - Minor in Philosophy
  - GPA: 3.93/4.0, Dean's List (all semesters)

## Research Experience

- **3D Reconstruction: MultiView Stereo and Structure from Motion** Spring 2019
  - Explored algorithms which recover 3D model from 2D images using a sequence of Structure from Motion (SfM), Multi View Stereo (MVS), Meshing, and Texturing techniques.
  - Created various datasets of objects, scenes, and crowded scenes and experimented with six state-of-the-art 3D reconstruction pipelines.
  - Provided effective visual comparisons in terms of the sparse point cloud, dense point cloud, and textured surface reconstruction results of each pipeline.
  - Presented original findings and insights in terms of reconstruction results.
- **Research Assistant on [Cartograph](#) at Prof. Sen's Lab** Summer 2019 - present
  - Generated meaning labels for Cartograph, which creates interactive maps that visualize Wikipedia articles in the form of real-world style geographical maps, enabling users explore information geographically and spatially.
  - Constructed a joint algorithm of clustering, embedding, and labeling to generate more semantically homogeneous clusters.
  - Conducted collaborative research on keyword extraction and cluster labeling algorithms to generate meaningful labels for clusters.
  - Conducted 608 user studies on cluster label quality via Amazon Mechanical Turks, performed data analysis and data visualizations on the results from the survey.
- **Exploring City Structures and Communities with Traffic Networks** Spring 2018
  - Conducted collaborative research on traffic network visualization and graph theory using Python and Gephi, centrality measures, node degrees, and Louvain modularity.
  - Explored city structures and communities of eight major cities across the world with traffic networks via trajectory datasets from Uber Movement.

- Identified the main functional, territorial, socio-economical, geographical, or ethnic dividers and compared the main dividers from traffic network with the existing borders defined by other characteristics.
- Performed time series analysis in R on the traffic flow to analyze the underlying structures of eight major cities across the world.
- **Mathematical Contest in Modeling**
  - Designated as Meritorious Winner (top 8% teams in over 10,000 teams).
  - Used systems of differential equations to model the spreading of six representative drugs which can account for 96.8% of all reported research targets in the year of 2017.
  - Applied a linear regression model to study the geographical characteristics of the distribution of selected drugs to identify the state at which the local growth rate of a specific drug is most correlated to its overall growth rate of the drug.
  - Applied a linear regression model to evaluate the relevancy of six socio-economic factors that are doubted to associate with illicit drug usage, including education level, immigration, and whether being a veteran or not.
  - Tested the effectiveness of possible solutions targeted at researched factors with salient influence on the spreading of synthetic opioids and heroin.

## Teaching Experience

- Jan 2020 - present: TA for COMP 128 Data Structures
  - Held weekly tutoring hours and taught stacks, queues, lists, trees, heaps, hash tables, graphs, and algorithms that use these data structures.
  - Graded homework and gave feedback to improve students' coding/annotating style and clarify ambiguous concepts.
- Sept 2019 - Dec 2019: TA for COMP 127 Object-Oriented Programming and Abstraction
  - Taught topics including abstraction, decomposition, encapsulation, classes, objects, polymorphism, inheritance, testing, refactoring, events, closures, streams, immutability, parallel programming, and version control.
  - Helped students use object-oriented programming in Java to create graphics, games, and simulations, and explore natural language processing.
- Sept 2018 - May 2019: Peer Writing Tutor - Macalester Academic Excellence Center
  - Recommended to this position by Philosophy Professor Samuel Asarnow.
  - Helped Macalester peers with a variety of writing projects through brainstorming, organizing thoughts, making outlines, and polishing language.

- Sept 2018 - Dec 2018: TA for Applied Multivariable Calculus
  - Held weekly office hours to illustrate concepts in Calculus and help students with homework problems.

## Coursework

Computer Science: Introduction to AI/Robotics, Robotics: Perception (Coursera), Convolutional Neural Networks for Visual Recognition (Stanford CS231n, self studied online), Object-Oriented Programming in Java, Data Structures, Algorithms Design and Analysis, Software Development, Theory of Computation, Network Science

Mathematics: Applied Multivariable Calculus, Linear Algebra, Abstract Algebra, Combinatorics, Real Analysis, Measure Theory, Representation Theory, Topology, Differential Equations

Statistics: Introduction to Statistical Modeling, Probability, Mathematical Statistics, Machine Learning (Coursera)

## Honors and Awards

- 12/2019: Placed 8th out of 60 teams in the Mathematical Association of America North-Central Section (MAA-NCS) Team Competition
- 04/2019: Meritorious Winner (awarded to top 8% among 14,108 teams) in the Mathematical Contest in Modeling
- 02/2018: Outstanding Trial Team in MN Mock Trial Invitational Tournament (5th Place Out of 46 teams)
- 05/2017: Kofi Annan International Scholarship (Four-year scholarship)

## Skills

- Programming: Java, Python, R, Julia, C, C++, React, HTML, JavaScript, CSS