

# Anthony Chen | Curriculum Vitae

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Undergraduate US student and computer scientist completing the third and final year. Passionate about work/research in Machine Learning, Artificial Intelligence, and Data Science with a team with strong technical and interpersonal skills

## Previous Employment

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- **Optum Technology** **Eden Prairie, MN**  
*Machine Learning/Artificial Intelligence R&D Intern* *June 2018–August 2018*  
I was part of a proof of concept project for a new provider fraud detection method using graph databases and computer vision. Designed and created a graph database to store provider information. This database was run through self-designed queries and social network analysis tools to find fraud rings. These rings or clusters of providers were extracted and displayed into a self built ranking table that can receive verification from fraud experts. The feedback from experts helps reorder the ranking table by adjusting weight parameters through semi-supervised learning. Additionally I added a feature for image recognition of provider's address to address potential fraud. The method for this has impressed the company's business leaders to file for a patent and is currently under review.
- **UMN Computer Science&Engineering Department** **Minneapolis, MN**  
*Teaching Assistant* *January 2018 - Present*  
Currently a teaching assistant for computer science courses. Spring Semester 2018 I was a Machine Architecture & Organization TA. Currently a teaching assistant for Elementary Computational Algebra course. My duties included lead weekly discussion on class concepts and code implementation, proctoring/grading exams and assignments, and holding weekly office hours to assist one-one with students.
- **Optum Technology** **Minnetonka, MN**  
*Big Data Software Engineer Intern* *June 2017 - August 2017*  
I assisted in the company's Data Lake Development Team for Optum's Big Data Platform. Design and created a dashboard monitor to visually display ingestion progress of data files. The program would also alert teams to fix overclocked ingestion times and errors, thus reducing the need for a production support. Also made transporter/timestamp bash scripts to manipulate, measure, and improve the ingestion time for incoming data into the data lake. Wrote Hive Queries to analyze the volume, velocity, and variety of data in the Data Lake. Created and manipulated HBase tables and assisted in the connection and retrieval of those data tables onto a dashboard. Also worked with a production automation team to design an automation regression framework for improving time, enhance quality, and promote reusability within their Data Fabric 2.0.
- **Center for Academic Excellence** **Plymouth, MN**  
*Computer Science Camp Instructor* *May 2015 - August 2015*  
Taught and engaged young elementary and middle school students with the possibilities with computer science. Designed and created activities that would entice their interests while still teaching them important computer science concepts.

## Education

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### Academic Qualifications.....

- **University of Minnesota** **Twin Cities**  
3.87/4.0 GPA, Computer Science Major, Statistics Minor. 2016–2019  
AI&Robotics and Big Data Upper Division Specialty  
Relevant UD Courses: Artificial Intelligence I & II, Machine Learning, Robotics, Data Science II, Applied Linear Algebra, Theory of Statistics I & II, Algorithms & Data Structures
- **Wayzata High School** **Plymouth**  
4.2/4.0 Weighted GPA, AP Scholar with Distinction 2012–2016

### Notable Projects.....

- **Intended Future Grad School Project (Ongoing):** *'Visual Question & Answering with Computer Vision & NLP'*  
A research topic I have been following and am passionate for is Visual Question & Answering. This would be one of my intended projects for a PhD or Masters either as a thesis or just another research project. It involves combining computer vision and natural language processing. I am curious about the potential usefulness of applying Capsule Neural Networks to the computer vision side.
- **Undergraduate Research Project (Ongoing):** *'Energy Efficiency Maximization in Robot Swarms'*  
This year long project is focusing on the energy maximization of large numbers of robots in foraging tasks. It uses ARGoS simulator with hundreds of robots. Real life robots are to be used through the GRITS lab. Professor advisor is Maria Gini.
- **Artificial Intelligence II Final Project:** *'Stock Trading Agent That Utilizes Number of Tweets'*  
My final project for my Artificial Intelligence II project explores the twitter sentiment analysis for prediction of stock price change. Used a metrics approach to see if the number of tweets can predict stock change through a designed agent with Feed Forward Neural Networks. A 12-page research paper was written as a product and is currently available on my website.

## Technical and Personal skills

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- **Programming Languages:** Proficient in: C, C++, Python, SQL, Java, Matlab, R, HTML/JavaScript, TeX, Assembly.
- **Industry Software Skills:** Git, Eclipse, Atom, Android Studio, Agile Methodologies, MS Office.
- **General Business Skills:** Good presentation skills, Works well in a team, Innovative thinker, Good team leader

## Activities

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- **Undergraduate Research Opportunities Conference** Was selected by University of Waterloo for an all expense paid trip to their university to explore and share research experience and opportunities.
- **Robotics & Machine Learning Study Abroad** Last May, I was fortunate enough to participate in a study abroad in Italy to study Machine Learning and Robotics at some of the most prestigious universities in Italy. I also got to attend the IEEE 2018 International Symposium on Circuits & Systems in Florence while I was there.
- **Tau Beta Pi Board Member** I am a board member of the engineering society Tau Beta Pi at the University of Minnesota branch for academically achieving engineering students.