

# Tung D. Nguyen - Curriculum Vitae

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## Research Interests

Human-Computer Interaction, Social Computing, Social Network Analysis, Natural Language Processing, Data Mining, Information Retrieval, Machine Learning

## Education

2015 – 2019    **Illinois Institute of Technology**  
Chicago, IL    B.S., Computer Science (Applied Math minor), Summa Cum Laude  
Major GPA: 3.94 / 4.0; Cumulative GPA: 3.85 / 4.0.

## Selected Coursework

- *Computer Science*: Machine Learning, Social Network Analysis, Deep Learning, Computer Vision, Computer Graphics, Database Organization
- *Applied Mathematics*: Probability & Statistics, Differential Equation, Linear Algebra, Multivariate & Vector Calculus, Finance

## Awards / Scholarships

- Leaders in Science and Technology Scholarship, Illinois Institute of Technology, 2015-2019
- International Scholarship, Illinois Institute of Technology, 2015-2019
- Dean's List For 9 consecutive semesters, Illinois Institute of Technology, 2015-2019
- Winner, HackRice, 2016
- 2nd Place, Wells Fargo IIT Finance Hackathon, 2017
- 1st Place, Intel International Science and Engineering Fair Hanoi, 2013

## Publications

- 2019    **Estimating Tie Strength in Follower Networks to Measure Brand Perceptions.**  
Tung Nguyen, Li Zhang, Aron Culotta. In *Proceedings of the 2019 International Symposium on Foundations and Applications of Big Data Analytics (ASONAM/FAB)*.  
(3 citations in Google Scholar)
- 2014    **Utilizing starch and clay mineral to make controlled-release fertilizer.**  
Tung Nguyen, Huy Nguyen, Trung Le, Ha Dao, Khoi Nguyen, Thang Tran, Manh Nguyen. In *Journal of Science & Technology Issue 52 - Vietnam Academy of Science and Technology*.

## Professional Experience

Mar 2020 – Present New York City, NY	<b>Google, Search</b> <i>Machine Learning Engineer</i> <ul style="list-style-type: none"><li>• Improving triggering classifier for Search Generative Experience</li><li>• Working on Search's query understanding. Predict users' needs and facilitate triggering of relevant Search features using ML.</li><li>• Utilizing Large Language Models to improve Search triggering precision.</li></ul>
Jan 2018 – Sep 2019 Chicago, IL	<b>Text Analysis in the Public Interest (TAPI) Lab</b> <i>Research Assistant - Advisor: Aron Culotta (Tulane University)</i> <ul style="list-style-type: none"><li>• Published a paper (<b>first author</b>) on estimating relationship strengths between a brand and its followers on Twitter, achieving average AUC of 0.84</li><li>• Built Spotify social-based music recommender on 5K users' followers network and playlists data. Achieved a <b>25% increase</b> in AUC (0.75).</li><li>• Researched on online users behavior: music tastes, mood shifts, and filter bubbles.</li></ul>
Mar 2019 – Aug 2019 Chicago, IL	<b>BMW</b> <i>Machine Learning Research Intern</i> <ul style="list-style-type: none"><li>• Made a real-time energy consumption prediction model, achieved <b>87% accuracy</b>.</li><li>• Developed an attainable destinations prediction model given a car's gas level</li></ul>
Sep 2018 – Dec 2018 Chicago, IL	<b>Prof. Edward M. Reingold Lab</b> <i>Research Assistant - Advisor: Edward Reingold (Illinois Tech)</i> <ul style="list-style-type: none"><li>• Created musical blueprints for various genres using Short Time Fourier Transform.</li><li>• Utilized Deep neural model and musical blueprints to convert songs to different genres. Achieved <b>60% accuracy</b> in music genre classifier with GTZAN Dataset.</li></ul>
Jun 2017 – Sep 2017 Chicago, IL	<b>Lynx Project – University of Chicago's Bioinformatics group</b> <i>Research Assistant - Advisors: Natalia Maltsev (UChicago), Gady Agam (IIT)</i> <ul style="list-style-type: none"><li>• Built a database to locate identical human protein sequences.</li><li>• Developed a search engine (Flask, jQuery, AJAX, Bootstrap) for said database.</li><li>• Integrated BLAST for deep sequences analysis and visualization.</li></ul>
Jun 2015 – Dec 2019 Chicago, IL	<b>Crafinity - A Personalized Gifts Brand</b> <i>Data Engineer</i> <ul style="list-style-type: none"><li>• Developed an automated orders processing pipeline for 10 Etsy stores, handled <b>50K orders</b> with <b>1.5M total revenue</b>.</li><li>• Created logging framework for real-time sales analysis, reduce 85% Marketing cost</li></ul>

Jan 2014 – Dec 2014  
Hanoi, Vietnam

## **Vietnam Academy of Science and Technology**

*Research assistant - Advisors: Manh Nguyen, Khoi Nguyen*

- Published a paper on sustainable fertilizer for Vietnam's mountainous area
- Conducted live experiments on the developed fertilizer

## **Teaching Experience**

Aug 2016 – Dec 2017

### **CS116: Object Oriented Programming (Illinois Institute of Technology)**

*Teaching assistant*

Aug 2017 – Dec 2018

### **CS331: Data Structures & Algorithms (Illinois Institute of Technology)**

*Teaching assistant*

Developed weekly review sessions and graded over 50 students' programming assignments each semester.

## **Selected Projects**

### **Social Network Analysis**

- Performed community detection and link prediction using Facebook "like" data and Girvan-Newman algorithm.
- Clustered Facebook graph into communities and make friend recommendation.
- Built a sentimental classifier based on IMDB movie reviews
- Implemented content-based recommendation algorithm.

### **Spotify's Social Music Recommender**

- Researched on understanding friends (and followers) influence on users' music taste using Spotify users' playlists and their corresponding Twitter's networks.
- Built a next-song prediction model. Achieved 0.77 AUC, a **40% increase** from Spotify's current recommender.

### **Harmonizing (HackRice 2016's Winner)**

- Developed a crowdsourcing platform which lets users create community-based music. (using Node.js, Express and Multer)

### **Image and Real-time Video Style Transfer**

- Utilized Convolutional Neural Network (VGG16) to build a real-time image and video style transfer model (Keras, Tensorflow)

### **Self-driving Mars Robotic Miner in NASA Robotic Mining Competition 2018**

- Developed obstacle avoidance and self-maneuvering system for Mars mining robot (LIDAR, Kinect, OpenCV and touch sensors).

### **Predict Outcomes of Competitive Gaming Matches using Azure and Apache**

- Built and served a Logistic Regression model predicting outcomes of League of Legends matches. (Azure HDInsight, Spark ML, Apache Spark, Cosmos DB).

### **Computer Graphics with WebGL and Javascript**

- Implemented Phong illumination model, surface rendering methods, Bresenham line drawing algorithm and Cardinal splines interpolation on interactive web applications.

### **Patutu Trade**

- Developed as virtual stock-trading game for beginner in finance. Taught users how to cooperate with media to predict the price of stocks.

## **Other Works**

### **G'LAMS - Founder**

- First Vietnamese-speaking student musical show produced by Hanoi-Amsterdam Hamlet Association of Art. Successfully running for 9 years, attracting approx. 5000 theatergoers.

### **After War Photography Exhibition - Designer & Photographer**

- An exhibition documented life after Vietnam war in Quang Tri (Vietnam), raising the society's awareness of the war consequences

### **K-Zao - Associate**

- An exceptionally queer, handcrafted bespoke tailoring fashion brand.

### **Illinois Tech Association of Computing Machinery - Board Member**

- Organized ScarlettHack - the first Major League Hacking Hackathon in Illinois Tech, attracting 200 developers.