

Xuefeng Hu

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Education

- 09/2017 – present **Columbia University**
New York, NY M.S. in Computer Science
Advisor: Shih-Fu Chang
- 09/2015 – 05/2017 **University of Michigan**
Ann Arbor, MI B.S.E. in Computer Science Engineering
- 09/2013 – 08/2017 **Shanghai Jiao Tong University**
Shanghai, China B.S.E. in Electrical and Computer Engineering

Research Projects

- 09/2017 – 11/2017 **Neighborhood and Community Aware Clustering**
New York, NY *Advised by Professor Shih-Fu Chang.*
Research Assistant
- Developed an unsupervised approach to find the parameter setting with highest supervised measure score for the proposed Neighborhood and Community Aware Clustering method, and therefore created an automatic version of the proposed clustering method which can automatically choose an nearly optimal parameter setting.
 - Researched and experimented on the different preferences of different clustering criteria. Found the one most similar to the supervised B-cubed F1 measure and modified it to be an unsupervised graph based clustering criterion which is highly correlated with the B-cubed F1 measure on the clustering results obtained by our proposed clustering method.
 - Work submitted to CVPR2018.

10/2017 – 12/2017 **Teaching Dimension with Partial Knowledge to Learner Hypothesis Set**
New York, NY *Advised by Professor Daniel Hsu.*

- Investigated the estimating of teaching dimension with restricted knowledge to learner's hypothesis set using interactive learning.
- Proposed a reasonable setting to formulate the problem, and proposed several improvements on the upper and lower bound of teaching dimension under this setting.
- Course project in seminar course: *Introduction to Learning Theory*.

06/2017 – 08/2017 **Real-time Illumination Robust Face Tracker**
Shanghai, China *Advised by Professor Chengbin Ma.*

- Developed a real-time face tracking system that is robust under variance illumination and occlusion by combining the Kernelized Correlation Filter for tracking and the Faster RCNN for face detection.
- Capstone project at SJTU

09/2016 – 11/2016 **Movie Face Clustering**
Ann Arbor, MI *Advised by Professor Jia Deng.*

*Undergraduate
Research Assistant*

- Designed a way to extract positive (same) and negative (different) relations between face tracks in the movie only based on the cuts and scene threads information. The result can help improve the performance of the movie face clustering algorithm.
- Implemented a web based well designed labeling system. With the labeling system, me and Mingzhe labeled over 50 movies and 30000 face tracks. The results provided the necessary data to train our model.
- Researched and implemented several clustering algorithms such as Hierarchical cluster, Xmeans cluster and Kmeans cluster, with several cluster number determination method such as the Bayesian Information Criterion and Elbow method. Provided the baseline results on the movie face clustering problem.
- Contributed to the design of the new proposed movie face clustering algorithm, including the feature selections and clustering scheme

05/2016 – 8/2016 **Quantum machine learning and quantum algorithms**
Ann Arbor, MI *Advised by Professor Yaoyun Shi.*

*Undergraduate
Research Assistant*

- Mastered the theoretical backgrounds, computation foundations, basic theories, proof frameworks and important algorithms including Grover Search Algorithm, Quantum Fourier Transformation, Phase Estimation, Shor's Algorithm, Amplitude Amplification, Discrete and Continuous Quantum Random Walk and some proof tricks of the Query and Gate complexity.
- Researched about several Quantum Machine Learning Algorithms such as Quantum Support Vector Machine and Quantum Kernel Method.
- Researched and mastered the improvements have been made in the last six year on quantum algorithms that solve linear systems and Hamiltonian Simulation problem.

Research Interests

General Artificial Intelligence area, including machine learning, computer vision and natural language processing. Particularly interest in computer vision, and problems related to scene understanding and multimedia information retrieval.

Publication

Daixin Wang, Svebor Karaman, **Xuefeng Hu**, Wenwu Zhu, Shih-Fu Chang. Neighborhood and Community Aware Clustering. Submitted to CVPR 2018.

Awards

- 03/2017 **University of Michigan**
James B. Angell Scholar
- 12/2016,04/2016, **University of Michigan**
12/2015 Dean's List
- 4/2016,12/2015 **University of Michigan**
University Honors
- 08/2015 **"TIC100" Smart City & IoT Business Challenge**
Finalist (National Top 8 teams)
- 08/2014 **Shanghai Jiao Tong University**
Merit Student at SJTU
- 04/2014 **Shanghai Jiao Tong University**
Outstanding Undergraduate Student Scholarship
- 12/2013 **2013 FALL University of Michigan-Shanghai Jiao Tong University Joint Institute Winter Design Expo**
Gold Metal
- 11/2013 **2013 FALL University of Michigan-Shanghai Jiao Tong University Joint Institute Robotic Racing Game**
Sliver Metal
- 10/2013 **Shanghai Jiao Tong University**
Outstanding Freshman Scholarship
- 11/2012 **2012 China High School Mathematics Competition**
National First Prize

Professional Experience

- 01/2016 – 05/2016 **University of Michigan**
Ann Arbor, MI Grader of Course: *Introduction to Foundations of Computer Science*.
Worked on grading around 40 students' homework per week.
- 09/2014 – 08/2015 **Shanghai Jiao Tong University Racing Team**
Shanghai, China Research and Development Engineer.
In charge of the design of the Panel Board of the formula car we prepared for the 2015 Formula Student China Competition.

Teaching

- 03/2014 – 06/2014 **Volunteer Tutor**
Shanghai, Xujing Neighborhood In charge of tutoring mathematics and physics for high school students in nearby community.

Skills

Languages, Libraries & Frameworks

JavaScript, C/C++, Python, Java, SQL, Torch, R, Verilog

Software & Platforms

MATLAB, Git, Visual Studio, L^AT_EX, Photoshop