

Yanyao Shen

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Education

- Tsinghua University, Beijing, China** GPA: **92/100** 2011.09 – 2015.07
Bachelor of Engineering in Electronic Engineering
- University of Texas at Austin, TX, US** GPA: **4.00/4.00** 2015.08 – now
Ph.D. in Electrical and Computer Engineering (pursuing)

Projects & Research

- CapitalOne Fraud Detection Competition (Machine Learning)** | Team Leader 2016.02 – 2016.04
We design a fraud detection model for large dataset with detailed feature engineering. We design three characteristic models based on fraud behavior and use algorithms including gradient boosted tree to generate predictions. We get **2nd place** in overall performance.
- Image Feature Points Matching: Algorithm and Theoretic Study** | Research Assistant 2015.10 – 2016.09
We exploit noisy feature mapping results and recover the underlying feature matching ground truth based on spectral method. Moreover, we assume random permutation noise and prove the convergence and optimality of the algorithm. Our paper was **accepted by NIPS**, a **top tier conference** in machine learning.
- Deep Learning on Yearbook Facial Data** | Team Leader 2016.08 – 2016.10
We try to improve the performance on a challenging task in computer vision: predicting the year a photo was taken. We use Tensorflow and implement architectures including VGG and ResNet for both classification and regression methods. Our model provides a 4.2-years prediction error on average.
- A Projector Interactive System Based on Structured Light** | Team Leader 2012.09 – 2013.05
An online gesture capturing algorithm was designed and implemented in a projector interactive system using C++ (OpenCV), the efficiency of the algorithm is due to the careful design of detecting method based on structured light. We gave demo presentation and won a **special prize**.

Core Courses

Undergrad: Signals and Systems (**98/100, rank 1st/20**), Calculus (**100/100, rank 1st/130**), Data Structure and Algorithm (**93/100, rank 2nd/100**), Linear Algebra, Computer Networks, Programming Language.

Graduate: Probability and Stochastic Processes (**99.02% weighted raw score**), Large-scale Machine Learning, Algorithms: Techniques and Theory, Convex Optimization, Deep Learning.

Selected Publication

- Normalized Spectral Map Synchronization, **Neural Information Processing Systems (NIPS), 2016**.
- Location-aware device communication design: exploration and exploitation on energy, **Wireless Commun., 2016**.
- Pricing Equilibrium for Data Redistribution Market in Wireless Networks with Matching Methodology, **International Conference on Communication (ICC), 2015**.

Honors & Awards

- CapitalOne Modelling Competition, **Final round 2nd place** 2016.04
- Outstanding Graduates and Outstanding Graduation Thesis in EE Department, Tsinghua University 2015.06
- National Scholarship, Tsinghua University 2013.10, 2012.10
- Special Prize (Highest) in the 13th “Challenge Cup” National Contest of College Students’ Scientific and Technological Work, Beijing Division (**Less than 1%**) 2013.09

Experiences

- Leadership: The team captain of a volunteer teaching group in Hainan Province, China for two weeks.
- Violinist in student symphony orchestra, won gold award in the 35th International Youth Music Festival in Vienna, Austria.

Skills

Language: C++, Python, Matlab, Bash, Java, Javascript, SQL, R, Stata.