YITAO CHEN

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Education

Ph.D., Electrical and Computer Engineering Aug. 2014 - Present
The University of Texas at Austin (UT Austin). Advisor: Prof. Sriram Vishwanath GPA: 3.89/4.00

Bachelor of Science, Electronic Science and Technology Sep. 2010 - July 2014
Shanghai Jiao Tong University (SJTU), China GPA: 92.8/100

Graduate Coursework: Probability & Stochastic Process I, Markov Chain and Mixing Time, Large Scale Optimization, Information Theory, Analysis and Design of Communication Network, Advanced Algorithms, Machine Learning: Large-scale Data, Estimation Theory, Sublinear Algorithm.

Current Research Interests:

Information Theory, Coding Theory, Machine Learning, Graph Algorithms

Publications

Yitao Chen, Karthikeyan Shanmugam, Alex Dimakis, Sriram Vishwanath. "Decentralized Coded Cache with Strong Edge Colored Graphs." Working paper (uploaded on arxiv soon).

Soumya Basu, Ger Yang, Thanasis Lianeas, Evdokia Nikolova, and **Yitao Chen**. "Reconciling selfish routing with social good." In International Symposium on Algorithmic Game Theory, pp. 147-159. Springer, Cham, 2017.

Muryong Kim, **Yitao Chen**, and Sriram Vishwanath. "Approximate Capacity of a Class of Partially Connected Interference Channels." *in Proc. IEEE International Symposium on Information Theory*, Aachen, Germany, Jun. 2017.

Muryong Kim, **Yitao Chen**, Michael Borokhovich and Sriram Vishwanath, "Index-coded retransmission for OFDMA downlink," *in Proc. IEEE Globecom*, Washington DC, Dec. 2016.

Yitao Chen, Jinbei Zhang, Xinbing Wang, Xiaohua Tian, Weijie Wu, Fan Wu, and Chee Wei Tan. "Secrecy capacity scaling of large-scale cognitive networks." *in Proceedings of the 15th ACM international symposium on Mobile ad hoc networking and computing*, pp. 125-134. ACM, 2014.

Selected Research Experience

Research Assistant Advisor: Prof. Sriram Vishwanath WNCG, UT Austin
Key Generation Rate of Physically Unclonable Functions Dec. 2016 - Present

· Formulate the Physically Unclonable Functions (PUF) key generation problems into an information-theoretic problem.
· Give the capacity of the key generation rate with lattice binning method.
· Implement the encoder and decoder with polar code.

Research Assistant Advisor: Alex G.Dimakis & Prof. Sriram Vishwanath WNCG, UT Austin
Decentralized Coded Cache with Strong Edge Colored Graphs Jan. 2017 - Present

· Designed a decentralized coded cache algorithm to minimize the total number of transmission on the broadcast link.
· Proved that the transmission gain loss is log log of the number of users.

Research Assistant Advisor: Prof. Sriram Vishwanath WNCG, UT Austin
Index Coding and the Capacity of Interference Channel with Side Information Jan. 2016 - Sep. 2016

· Designed a randomized Greedy coloring algorithm which beats the state of the art index coding algorithms.
· Proved the 1/2-bit gap between the up-bound and lower-bound of the capacity of interference channel with side information.

Research Assistant Advisor: Prof. Evdokia Nikolova WNCG, UT Austin
Reconciling selfish routing with social good Jan. 2015 - Dec. 2015

· Formulate the approximately fair path-flow decomposition routing game.
· Proved the negative result (complexity argument) of the problem.

Work Experience

Engineer Host: Hardik B.Jain GenXComm Inc.
Summer Research Intern *Jun.2016 - Aug. 2016*

· Build MAC layer for full-duplex radio on Xilinx FPGA (Zedboard).
· Theoretically model co-channel interference for full-duplex access point (it ensembles multiple full-duplex access points).

Selected Projects

Kaggle: Santander Customer Satisfaction, Course Project of Machine Learning, UT Austin Mar. 2016 - Apr. 2016

- Final position top 28%.
- Learned the pre-processing techniques.
- Build the ensemble model with Gradient Boost Machine, Logistic Regression, Neural Network, Random Forest and MLP.

Technical Skills

High-level languages	MATLAB (Expert), Python (Fluent), C++(Competent)
Hardware description languages	C, VHDL, C#, Assembly
Hardware design tools	Xilinx Vivado, GNU radio, Spark
Frameworks	NumPy, Pandas, Scikit-learn
Algorithms	Adaptive filtering, Polar Code, k-means Clustering, Locality Sensitive Hashing, Nonlinear Kalman Filtering, 802.11 MAC Layer, Stochastic Gradient Descent, Support Vector Machines

Scholarships and Prizes

National Scholarship (**top 1%**)	*2011*
Academic Excellence Scholarship (1st-class, **top 1%**) of Shanghai Jiao Tong University	*2011*
Ricoh Scholarship	*2012*
Academic Excellence Scholarship (2nd-class, **top 3%**) of Shanghai Jiao Tong University	*2012& 2013*
Honorable Prize in Mathematical Contest in Modeling	*2013*
Shanghai Scholarship (**top 1%**)	*2013*