Niangjun Chen

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https://niangjunchen.github.io

Research Interests

I am broadly interested in the design and analysis of online algorithms, optimization, mechanism design and their applications in enhancing energy efficiency in power grid and data centers.

Education

California Institute of Technology

Ph.D. candidate in Computer Science	GPA 4.1/4.3	10/2012 – 09/2017
Master of Science	GPA 4.1/4.3	10/2012- 06/2014

University of Cambridge

B.A. in Computer Science	1st Class Honors in all three years	10/2008 – 06/2011

Employment

Research Scientist
Institute of High Performance Computing, A*STAR — 12/2017 – Present

Ph.D Candidate in Computer Science
California Institute of Technology — 09/2012 – 09/2017

Research Intern
Qualcomm Research — 06/2015 – 09/2015

Research Engineer
Institute for Infocomm Research, A*STAR — 08/2011 – 06/2012

Honors and Awards

ACM Sigmetrics Student Travel Grant	2015, 2016
National Science Scholarship, A*STAR, Singapore	2012
A*STAR Roll of Honor	2012
Foundation Scholar, Pembroke College Cambridge University	2009, 2010, 2011

Publications

J. Comden, S. Yao, N. Chen, H. Xing, Z. Liu "Online Optimization in Cloud Resource Provisioning: Predictions, Regrets, and Algorithms", ACM Sigmetrics, 2019.

N. Chen, G. Goel, A. Wierman "Smoothed Online Convex Optimization in High Dimensions via Online Balanced Descent", Conference on Learning Theory (COLT), 2018.

N. Ruhi, K. Dvijotham, N.Chen, A. Wierman "Opportunities for price manipulation by aggregators in electricity markets" IEEE Transactions on Smart Grid, 9(6), 5687-5698.

N. Chen, "Online Algorithms: From Prediction to Decision", Ph.D Thesis, California Institute of Technology, 2018

Y.Nakahira, N. Chen, L. Chen, S. Low "Smoothed Least Laxity First Algorithm for EV Charging", Proceedings of the Eighth International Conference on Future Energy Systems, 242-251, 2017.

P. London, N. Chen, S. Vardi, A. Wierman "Distributed optimization via local computation algorithms", ACM Sigmetrics Performance Evaluation Review 45 (2), 30-32

G. Goel, N. Chen, A. Wierman "Thinking Fast and Slow: Optimization Decomposition Across Timescales", 2017 56th Conf. on Decision and Control, 1291-1298.

N. Ruhi, N. Chen, K Dvijotham, A. Wierman "Opportunities for price manipulation by aggregators in electricity markets", ACM Greenmetrics 2016, **Best Student Paper**.

N. Chen, J. Comden, Z. Liu, A. Gandhi and A. Wierman "Using Predictions in Online Optimization: Looking Forward with an Eye on the Past", ACM Sigmetrics Performance Evaluation Review 44(1), 193-206, 2016.

N. Chen, X. Ren, S. Ren and A. Wierman "Greening Multi-tenant Data Center Demand Response", Performance Evaluation, 91: 229-254 (2015)

N. Chen, A. Wierman, A. Agarwal, S. Barman and L. Andrew "Online Convex Optimization with Prediction", in Proc. ACM Sigmetrics: 191-204, June Portland

N. Chen, "Model predictive control for deferrable loads scheduling", Master Thesis, California Institute of Technology, 2014

N. Chen, L. Gan, S. H. Low, A. Wierman "Distributional Analysis for Model Predictive Deferrable Load Control", in Proc. IEEE 53rd Conf. on Decision and Control: 6433-6438, Dec 2014 Los Angeles

N. Chen, T. Q. S. Quek, and C. W. Tan, "Electric vehicles charging in smart grid: Optimality and valley-filling algorithms", IEEE Trans. on Selected Topics in Signal Processing 2014 8(6), 1073-1083

Z. Liu, A. Wierman, Y. Chen, B. Razon, N. Chen *"*Data Center Demand Response: Avoiding the Coincident Peak via Workload Shifting and Local Generation*",* in Performance Evaluation 70, no.

10 (2013): 770-791

L. Gan, A. Wierman, U. Topcu, N. Chen, S. Low "Real-Time Deferrable Load Control: Handling Uncertainties of Renewable Generation", in Proc. ACM e-Energy May 2013 Berkeley

N. Chen, T. Q. S. Quek, and C. W. Tan, "Optimal charging of electric vehicles in smart grid: characterization and valley-filling algorithms", in Proc. IEEE SmartGridComm November 2012 Taiwan

Professional Activities

Reviewer for:

Transactions on Networking
Transactions on Signal Processing
Transactions on Automatic Control
Transactions on Smart Grid
Transactions on Power Systems
Transactions on Sustainable Energy
NIPS(2018), ICML(2018), PSCC(2017), ACC(2017), CDC(2017), WCNC (2012, 2014)

Teaching Experience

TA for CS 146 (Platforms and Internet Marketplaces), Spring 2016
TA for CS 144 (Networks: Structure and Economics), Winter 2015
TA for CS 144 (Ideas Behind Our Networked World), Winter 2014
TA for CS 101C (Special Topics in Data Privacy), Spring 2013

Tools and Techniques: Proficiency in Java, Matlab, C/C++, Python, good working knowledge with Bash scripting, HTML