

Niangjun Chen

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<https://niangjunchen.github.io>

Education

California Institute of Technology

Ph.D. 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	1 st Class Honors in all three years	10/2008 – 06/2011
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Employment

Assistant Professor

Singapore University of Technology and Design	09/2020 - present
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Research Scientist

Institute of High Performance Computing, A*STAR	12/2017 – 09/2020
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Ph.D. in Computer Science

California Institute of Technology	09/2012 – 09/2017
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Honors and Awards

ACM Sigmetrics Student Travel Grant	2015, 2016
National Science Scholarship (PHD), A*STAR, Singapore	2012
A*STAR Roll of Honor	2012
Foundation Scholar, Pembroke College Cambridge University	2009, 2010, 2011
National Science Scholarship (BS), A*STAR, Singapore	2008

Research Interests

I am broadly interested in the design, analysis and implementation of algorithms, optimization, machine learning and their applications in enhancing operational efficiency of power grid, data centers, and transportation systems.

Publications

D Li, N.Chen, A T Do, B Wang, “LAXOR: a Scalable and Reconfigurable BNN Accelerator with Latch-XOR Logic for Local Computing”, in submission

C Kurniawan, X Deng, A Chakraborty, A Gueye, N.Chen, Y Nakahira, “A Learning and Control Perspective for Microfinance”, arXiv preprint arXiv:2207.12631

N.Chen, C Kurniawan, Y Nakahira, L Chen, SH Low, “Smoothed Least-Laxity-First Algorithm for EV Charging”, IEEE Transactions on Smart Grid 13 (3), 2209-2217

Y. Liu, N.Chen, Z. Liu, Y. Yang “Online Cloud Resource Provisioning Under Cost Budget for QoS Maximization”, IEEE/ACM International Symposium on Quality of Service, 2021

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

Transactions on Communications

Transactions on Modeling and Performance Evaluation of Computing Systems

European Journal of Operation Research

NIPS(2018, 2019, 2020), ICML(2018, 2019, 2020), PSCC(2017, 2019), ACC(2017),

CDC(2017), WCNC (2012, 2014)