

# WEN SHEN

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## Research Interests

I study how to influence human or artificial agents' behavior for desired outcomes. In particular, I develop algorithms and machines that induce cooperation among agents with diverse and perhaps conflicting interests to achieve societal objectives. In doing so, I push the boundaries at the intersection of artificial intelligence, human-machine interaction, interactive machine learning, and algorithmic economics. I'm passionate about implementable, reliable and automated mechanism/information/institution design, especially one that scales in dynamic environments.

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## Education

### University of California, Irvine

*Ph.D in Information and Computer Science*

Irvine, CA

Sept.2014 - June 2019

- Advisor: Cristina Lopes
- Topic: Automated incentive design.

### Masdar Institute of Science and Technology

*M.S. in Computing and Information Science*

Abu Dhabi, UAE

Sept.2011 - June 2013

- Advisor: Jacob Crandall
- Topic: Regulating autonomous machine societies.

### Northwestern Polytechnical University

*B.E. in Software Engineering*

Xi'an, China

Sept.2005 - July 2009

- Topic: Learning for Spam filter systems.

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## Professional Experience

### University of California, Irvine

*Graduate Student Researcher*

Irvine, CA

Sept. 2014 - Present

- Developed the Expand and Target algorithm and an online mechanism for managing AMoD systems.

### University of California, Irvine

*TA/Reader*

Irvine, CA

Sept. 2014 - June 2015

- Assisted in teaching the following undergraduate courses (INF43, INF124) and graduate courses (INF225, INF295).

### Masdar Institute of Science and Technology

*Research Engineer*

Abu Dhabi, UAE

Aug. 2013 - Aug. 2014

- Developed machine learning algorithms for detection and diagnosis of heating, ventilation and air conditioning systems.

### Masdar Institute of Science and Technology

*Research Assistant*

Abu Dhabi, UAE

Sept. 2011 - May 2013

- Worked on the project *Managing real-time interventions in smart buildings*.

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## Professional Service

The Sixth International Conference on Intelligent Systems and Applications, Program Committee	2017
The ACM CHI Conference on Human Factors in Computing Systems, Reviewer	2017
The 12th ACM/IEEE International Conference on Human-Robot Interaction, Reviewer	2017
The 11th ACM/IEEE International Conference on Human-Robot Interaction, Reviewer	2016
International Journal of Electrical Power & Energy Systems, Reviewer	2013

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## Publications

1. K. Yan, Z. Ji, **W. Shen**: *Online Fault Detection Methods for Chillers Combining Extended Kalman Filter and Recursive One-class SVM*. Neurocomputing.
2. **W. Shen**, C.V. Lopes, J.W. Crandall: *An Online Mechanism for Ridesharing in Autonomous Mobility-on-Demand Systems*. In Proceedings of the 25th International Joint Conference on Artificial Intelligence (*IJCAI 2016*, New York City, NY).
3. **W. Shen**, C. V. Lopes: *Managing Autonomous Mobility on Demand Systems for Better Passenger Experience*. In Proceedings of the 18th Conference on Principles and Practice of Multi-Agent Systems (*PRIMA 2015*, Bertinoro, Italy).
4. T. Mulumba, A. Afshari, K. Yan, **W. Shen**, L. K. Norford: *Robust Model-based Fault Diagnosis for Air Handling Units*. Energy and Buildings, Vol.86(2015), pp. 698-707.
5. K. Yan, **W. Shen**, T. Mulumba, A. Afshari: *ARX Model Based Fault Detection and Diagnosis for Chillers using Support Vector Machines*. Energy and Buildings, vol.81(2014), pp. 287-295.
6. **W. Shen**, V. Babushkin, Z. Aung, W.L. Woon: *An Ensemble Model for Day-ahead Electricity Demand Time Series Forecasting*. In Proceedings of the 4th ACM International Conference on Future Energy Systems (ACM *e-Energy'13*, Berkeley, CA), pp. 51-62, 2013.
7. W. Zheng, **W. Shen**, Y. Zhang: *Implementing Spam Filter by Improving Naïve Bayesian Algorithm*. Journal of Northwestern Polytechnical University, vol.28, no.4, pp. 622-627, 2010 (In Chinese).
8. **W. Shen**: *Regulating Self-Adaptive Multi-Agent Systems with Real-Time Interventions*. Master Thesis, Masdar Institute of Science and Technology, June 2013.

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## Skills

**Languages:** Python, Java, C/C++, JavaScript  
**Others:** Qt, OpenGL, MySQL

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## Honors and Awards

Chair's Award, Department of Informatics, University of California, Irvine	2014
Student Travel Grant (US\$2,500), Masdar Institute of Science and Technology	2013
Fellowship, Masdar Institute of Science and Technology	2011-2013
Best Bachelor Thesis Award, Northwestern Polytechnical University	2009
National Endeavor Scholarship, Ministry of Education of China	2008
Academic Excellence Scholarship, Northwestern Polytechnical University	2006-2008