

## Peng Jia

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**OBJECTIVE** A postdoctoral research fellowship or a tenure-track teaching position in the field of systems and control, stochastic processes and dynamical systems with relevance to contemporary engineering systems, and social and economic sciences.

**EDUCATION** *Ph.D.*, Electrical and Computer Engineering, McGill University, 2010.

- Advisor: Prof. Peter E. Caines
- Thesis: *Formulation and Dynamical Analysis of Quantized Progressive Second Price Auctions*

*M. Phil.*, Mechanical and Automation Engineering, the Chinese University of Hong Kong (CUHK), 2005.

- Advisor: Prof. Jie Huang
- Thesis: *Application and Evaluation of Advanced Nonlinear Control Techniques*

*B. Eng.*, School of Automation Science and Electrical Engineering, Beijing University of Aeronautics and Astronautics (BUAA), 2001.

**PROFESSIONAL EXPERIENCE** *Postdoc*, Department of Electrical and Computer Engineering, The University of British Columbia, working with Prof. Vikram Krishnamurthy. (Feb. 2011 - Dec. 2011).

*Research Assistant*, Department of Electrical and Computer Engineering, McGill University, Canada. (Sep. 2005 - Jan. 2011).

*Research Assistant*, Department of Mechanical and Automation Engineering, CUHK, Hong Kong. (Aug. 2003 - Aug. 2005).

*Research Assistant*, School of Automation Science and Electrical Engineering, BUAA, China. (Aug. 2002 - Jul. 2003).

*Electrical Engineer*, Haier (Beijing) IC Design Co., Ltd, China. (Jul. 2001 - Jul. 2002).

**RESEARCH INTERESTS**

- Dynamical auctions and their potential applications in communication networks, power systems, social networks and other decentralized systems
- Stochastic games and dynamic global games in sensor networks and cognitive radio
- Large population stochastic systems and control
- Nonlinear control and output regulation

**PUBLICATIONS** Journal Articles

- Jia, P. and Caines, P. E. (2010). "Analysis of Quantized Double Auctions with Application to Competitive Electricity Markets." *INFOR, Special Issue on Game Theory in Energy*, 48(4), 239–250.
- Jia, P. and Caines, P. E. (2010). "Analysis of a Class of Decentralized Dynamical Systems: Rapid Convergence and Efficiency of Dynamical Quantized Auctions." *IMA Journal of Mathematical Control and Information*, 27 (3), 329–372.

- Jia, P., Qu, C. W. and Caines, P. E. (2009). “On the Rapid Convergence of a Class of Decentralized Decision Processes: Quantized Progressive Second Price Auctions.” *IMA Journal of Mathematical Control and Information*, 26 (3), 325–355.

Submitted and in Preparation

- Jia, P. and Caines, P. E. (2011). “Analysis of Decentralized Quantized Auctions on Cooperative Networks.” Submitted to the *IEEE Transactions on Automatic Control*, May, 2011.
- Jia, P. and Krishnamurthy, V. (2011). “POMDP Stopping Time Problems With a Continuum of Agents - A Dynamic Global Game Theoretic Approach.” In preparation.

Conference Proceedings and Presentations

- Jia, P. and Caines, P. E. (2010). “Analysis of Decentralized Decision Processes in Competitive Markets: Quantized Single and Double-Sided Auctions.” *Proceedings of the 49th IEEE Conference on Decision and Control*, Atlanta, USA, December, 2010, pp 237–243.
- Jia, P. and Caines, P. E. (2009). “Auctions on Networks: Efficiency, Consensus, Passivity, Rates of Convergence.” *Proceedings of the 48th IEEE Conference on Decision and Control*, Shanghai, China, December, 2009, pp 8606–8611.
- Jia, P. and Caines, P. E. (2009). “Analysis of Quantized Auctions in Competitive Electricity Markets.” Presented at the *Third Workshop on Game Theory in Energy, Resources and Environment*, Montreal, Canada, December, 2009.
- Jia, P. and Caines, P. E. (2009). “Equilibria and Convergence of Auctions on Networks.” *Proceedings of International Conference on Game Theory for Networks*, Istanbul, Turkey, May, 2009, pp 268–276.
- Jia, P. and Caines, P. E. (2008). “Probabilistic Analysis of the Rapid Convergence of a Class of Progressive Second Price Auctions.” *Proceedings of the 47th IEEE Conference on Decision and Control*, Cancun, Mexico, December, 2008, pp 5476–5481.
- Qu, C. W., Jia, P. and Caines, P. E. (2007). “Analysis of Decentralized Decision Processes: Quantized Progressive Second Price Auctions.” *Proceedings of the 46th IEEE Conference on Decision and Control*, New Orleans, USA, December, 2007, pp 779–784.
- Jia, P. and Huang, J. (2005). “Disturbance Attenuation of the Nonlinear Benchmark System by Approximate Discrete-time Nonlinear H1 Control.” Presented at the *24th Chinese Control Conference*, Guangzhou, China, 2005.

**AWARDS,  
HONORS, AND  
FELLOWSHIPS**

*Research Assistantship*, Department of Electrical and Computer Engineering, McGill University, Canada. (Sep. 2005 - Jan. 2011).

*Best Teaching Assistant Award*, Department of Mechanical and Automation Engineering, CUHK, Hong Kong. (2005).

*Research Assistantship*, Department of Mechanical and Automation Engineering, CUHK, Hong Kong. (Aug. 2003 - Aug. 2005).

*Scholarship*, School of Automation Science and Electrical Engineering, BUAA, China. (1997 - 1998).

**PROFESSIONAL  
SERVICE**

*Session Co-Chair* of the 48th IEEE Conference on Decision and Control. (2009).

*Reviewer* for IEEE Transactions on Automatic Control, IEEE/ACM Transactions on Networking, IEEE Conference on Decision and Control, and International Conference

on Game Theory for Networks.

**TEACHING  
EXPERIENCE**

*Teaching Assistant, Probability and Random Sig. 1*, McGill University, 2007.

- Instructor: Prof. Peter E. Caines

*Teaching Assistant, Stochastic Process and Systems*, McGill University, 2007.

- Instructor: Prof. Peter E. Caines

*Teaching Assistant, Optimal and Robust Control*, CUHK, 2005.

- Instructor: Prof. Yeung Yam

*Teaching Assistant, Laboratory Experiment II*, CUHK, 2004.

- Instructor: Prof. Jie Huang

*Teaching Assistant, Advanced Engineering Mathematics*, CUHK, 2004.

- Instructor: Prof. Zhiyang Yao

**PROFESSIONAL MEMBERSHIPS** Institute of Electrical and Electronics Engineers (IEEE). Society for Industrial and Applied Mathematics (SIAM). American Mathematical Society (AMS).

**REFERENCES**

Prof. Peter E. Caines

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Prof. Roland P. Malhame

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Prof. Vikram Krishnamurthy

*Affiliation:* Department of Electrical and Computer Engineering, The University of British Columbia

*Mail:* Kaiser Building, 2332 Main Mall, The University of British Columbia, Vancouver, B.C., V6T 1Z4 Canada

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Prof. Michael Rabbat

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