Curriculum Vitae

Personal Information

Tao Chen, Ph.D.
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Current Appointment

Visiting Assistant Professor — July 2017 - Present
Department of Statistics and Applied Probability
University of California, Santa Barbara

Past Appointments

Adjunct Professor — June 2017 – July 2017
Department of Applied Mathematics
Illinois Institute of Technology

Visiting Assistant Professor — August 2016 – May 2017
Department of Applied Mathematics
Illinois Institute of Technology

Education

Doctor of Philosophy: Applied Mathematics, Illinois Institute of Technology, USA, August 2016

- Thesis: Dynamic Conic Finance via Backward Stochastic Different Equations and Recursive Construction of Confidence Regions
- Advisors: Tomasz Bielecki, Igor Cialenco

Professional Master: Mathematical Finance, Illinois Institute of Technology, USA, 2012

Master of Science: Applied Mathematics, Nanjing University, China, 2010

Bachelor of Science: Applied Mathematics, Southeast University, China, 2007

Publications

Dynamic Conic Finance via Backward Stochastic Difference Equations (with Tomasz R. Bielecki and Igor Cialenco), SIAM J. Fin. Math. 6(1), 1068-1122. (55 pages), 2015.

Recursive Construction of Confidence Regions (with Tomasz R. Bielecki and Igor Cialenco), Electron. J. Statist. 11(2), 4674-4700. (27 pages), 2017

Adaptive Robust Control under Model Uncertainty (with Tomasz R. Bielecki, Igor Cialenco, Areski Cousin and Monique Jeanblanc), SIAM J. Control Optim. 57(2), 925-946, (22 pages), 2019

A Machine Learning Approach to Adaptive Robust Utility Maximization and Hedging (with Michael Ludkovski), Preprint, (33 pages), 2019

Adaptive Robust Mean Variance Optimization (with Tomasz R. Bielecki and Igor Cialenco), In preparation, 2019

Nonparametric Bayesian Stochastic Control (with Jiyoun Myung), In preparation, 2019

Nonparametric Adaptive Robust Control (with Tomasz R. Bielecki and Igor Cialenco), In preparation, 2019

Research Interests

Stochastic Control, Statistical Inference, Machine Learning, Robust Techniques, Model Uncertainty, Model Risk, Dynamic Risk Measures, Dynamic Acceptability Indices, Backward Stochastic Differential Equations, Derivative Pricing

Presentations and Posters

Parametric Optimization, Robust Stochastic Control and Statistical Surrogates
SIAM Conference on Financial Mathematics & Engineering, Toronto, 2019

Parametric Optimization, Robust Stochastic Control and Statistical Surrogates
9th Western Conference on Mathematical Finance, Los Angeles, 2018

Nonparametric Adaptive Robust Control under Model Uncertainty
Department Seminar Fall 2018, University of California, Santa Barbara, 2018

Adaptive Robust Stochastic Control and Statistical Surrogates
Robust Techniques in Quantitative Finance, Oxford, UK, 2018

Adaptive Robust Trading under Model Uncertainty
10th World Congress of the Bachelier Finance Society, Dublin, Ireland, 2018

Adaptive Robust Hedging under Model Uncertainty
Mathematical Finance Colloquium, University of Southern California, 2017

Market Making via Sub-scale Invariant Dynamic Acceptability Indices
CFMAR Seminar, University of California, Santa Barbara, 2017

Adaptive Robust Hedging under Model Uncertainty
SIAM Conference on Financial Mathematics & Engineering, Austin, 2016

Dynamic Conic Finance via Backward Stochastic Difference Equations
Methods of Mathematical Finance, Pittsburgh, June 2015

Conferences and Summer Schools

SIAM Conference on Financial Mathematics & Engineering, Toronto, 2019

9th Western Conference on Mathematical Finance, Los Angeles, 2018

3rd Eastern Conference on Mathematical Finance, Chicago, 2018

Robust Techniques in Quantitative Finance, Oxford, UK, 2018

10th World Congress of the Bachelier Finance Society, Dublin, Ireland, 2018

Robust Methods in Probability & Finance, Providence, 2017

SIAM Conference on Financial Mathematics & Engineering, Austin, 2016

Methods of Mathematical Finance, Pittsburgh, 2015

SIAM Conference on Financial Mathematics & Engineering, Chicago, 2014

SIAM Conference on Financial Mathematics & Engineering, Minneapolis, 2012

The 13th National Mathematics Graduate Summer School, 2008

Awards

Applied Math McMorris Summer Stipend Award, 2012

Excellent Thesis, 2007

Jiangsu Provincial First Prize in China Undergraduate Mathematical Contest in Modeling, 2005

Academic Services

Reviewer for Scientific Journals

SIAM Journal on Control and Optimization

Stochastics: An International Journal of Probability and Stochastic Processes

Journal of Banking and Finance

Mathematics and Financial Economics

Teaching Experience

Department of Statistics and Applied Probability, University of California, Santa Barbara

- PSTAT 120A (Probability and Statistics) 2017, 2018, 2019
- PSTAT 170 (Introduction to Mathematical Finance) 2018, 2019
- PSTAT 171 (Mathematics of Fixed Income Markets) 2019
- PSTAT 176/276 (Advanced Mathematical Finance) 2018
- PSTAT 193 (Internship in Statistics) 2018
- PSTAT 199 (Independent Studies) 2018

Department of Applied Mathematics, Illinois Institute of Technology

- MATH 252 (Introduction to Differential Equations) Fall 2016, Spring 2017
- MATH 333 (Matrix Algebra and Complex Variables) Spring 2017

- MATH 474 (Probability and Statistics) Summer 2017

Non-academic Professional Experience

Quantitative Risk Research Intern, CME Group, March 2012 - May 2012

- Data cleaning
- Constructing historical curves of major currencies

Other Experience

Research/Teaching Assistant, Illinois Institute of Technology, 2012 - 2016

Treasurer of IIT SIAM Student Chapter, 2012 - 2013

Grader at Department of Applied Mathematics, Illinois Institute of Technology, 2011-2012

Teaching Assistant, Department of Mathematics, Nanjing University, 2007 - 2010