

# Michael Albert

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## Academic Appointments

### **University of Virginia**

Charlottesville, VA

Assistant Professor with Appointments in the Darden School of Business, Computer Science, and Engineering Systems and Environments

August 2018 - Present

### **Duke University - Department of Computer Science**

Durham, NC

Post-Doctoral Researcher in Artificial Intelligence

August 2016 - July 2018

### **The University of Texas at Austin - Department of Computer Science**

Austin, TX

Post-Doctoral Researcher in Artificial Intelligence

August 2015 - August 2016

### **The Ohio State University - Fisher College of Business**

Columbus, OH

Visiting Assistant Professor of Finance

August 2013 - May 2015

## Education

*PhD*, Financial Economics, Duke University, 2013.

*MS*, Computer Science, Duke University, 2013.

*BS*, Quantitative Finance, Valedictorian, James Madison University, 2006.

*BS*, Mathematics with minor in Physics, Valedictorian, James Madison University, 2006.

## Other Experience

Member of TxDOT 6838 Mega Project as part of a subproject titled "Bringing Smart Transport to Texans: Ensuring the Benefits of a Connected and Autonomous Transport System in Texas."

August 2015 - August 2016

## Fields of Research Interest

Artificial Intelligence, Algorithmic Mechanism Design, Game Theory, Machine Learning, Decision Theory, Transportation, and Corporate Finance

## Publications

### *Journal Articles*

Michael Albert, Vincent Conitzer, Giuseppe Lopomo, Peter Stone (2021) "Mechanism Design for Correlated Valuations: Efficient Methods for Revenue Maximization." *Operations Research* 70(1):562-584.

Michael Albert, Jason Fink, and Kristen Fink, "Adaptive Mesh Modeling and Barrier Option Pricing Under a Jump-Diffusion Process," *Journal of Financial Research*, 31, 381-408, 2008.

### *Refereed Conference Papers with Published Proceedings*

Minbiao Han, Michael Albert, Haifeng Xu, "Leaning in Online Principal-Agent Interactions: The Power of Menu," *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI-24)*, Vancouver, Canada, 2024.

Mathijs de Weerd, Michael Albert, Vincent Conitzer, and Koos van der Linden, "Complexity of Scheduling Charge in the Smart Grid," *Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-18)*, Stockholm, Sweden, 2018.

Guni Sharon, Michael Albert, Tarun Rambha, Stephen Boyles, and Peter Stone, "Traffic Optimization for a Mixture of Self-Interested and Compliant Agents." *Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18)*, New Orleans, LA, USA, 2018.

Michael Albert, Vincent Conitzer, and Peter Stone. "Mechanism Design with Unknown Correlated Distributions: Can We Learn Optimal Mechanisms?" *Proceedings of the Sixteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-17)*, Sao Paulo, Brazil, 2017.

Guni Sharon, Josiah Hanna, Tarun Rambha, Michael Levin, Michael Albert, Stephen Boyles and Peter Stone. "Real-time Adaptive Tolling Scheme for Optimized Social Welfare in Traffic Networks." *Proceedings of the Sixteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-17)*, Sao Paulo, Brazil, 2017.

Michael Albert, Vincent Conitzer, and Peter Stone, "Automated Design of Robust Mechanisms." *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI-17)*, San Francisco, CA, USA, 2017.

Josiah Hanna, Michael Albert, Peter Stone, and Donna Chen. "Minimum Cost Matching for Autonomous Carsharing." *Proceedings of the 9th IFAC Symposium on Intelligent Autonomous Vehicles (IAV-2016)*, Leipzig, Germany, 2016.

Michael Albert, Vincent Conitzer, and Giuseppe Lopomo, "Maximizing Revenue with Limited Correlation: The Cost of Ex-Post Incentive Compatibility." *Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence (AAAI-16)*, Phoenix, AZ, USA, 2016.

Michael Albert, Vincent Conitzer, and Giuseppe Lopomo, "Assessing the Robustness of Cremer-McLean with Automated Mechanism Design." *Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15)*, Austin, TX, USA, 2015.

### *Refereed Workshop Papers*

Guni Sharon, Josiah Hanna, Tarun Rambha, Michael Albert, Peter Stone, and Stephen D. Boyles, "Delta-Tolling: Adaptive Tolling for Optimizing Traffic Throughput," *Proceedings of the 9th International Workshop on Agents in Traffic and Transportation (ATT 2016)*, 2016.

### *Working Papers*

Michael Albert and Minbiao Han, “Provably Correct Black Box Mechanism Design”, Working Paper, 2020.

Michael Albert, “Minimum Revenue Socially Efficient Mechanisms Under Correlated Valuations”, Working Paper, 2022.

Michael Albert, “Executive Compensation and Firm Leverage,” Working Paper, 2014.

Michael Albert, “Financial Development, Intellectual Property Rights, and Growth,” Working Paper, 2011.

### *Technical Reports*

Kockelman, K., S. D. Boyles, P. Stone, D. Fagnant, R. Patel, M. W. Levin, G. Sharon, M. Simoni, M. Albert, H. Fritz, R. Hutchinson, P. Bansal, G. Domnenko, P. Bujanovic, B. Kim, E. Pourrahmani, S. Agrawal, T. Li, J. Hanna, A. Nichols, and J. Li. (2017) An Assessment of Autonomous Vehicles: Traffic Impacts and Infrastructure Needs — Final Report. Texas Department of Transportation report FHWA/TX-17/o-6847-1.

Kockelman, K., S. D. Boyles, P. Avery, C. Claudel, L. Loftus-Otway, D. Fagnant, P. Bansal, M. W. Levin, Y. Zhao, J. Liu, L. Clements, W. Wagner, D. Stewart, G. Sharon, M. Albert, P. Stone, J. Hanna, R. Patel, H. Fritz, T. Choudhary, T. Li, A. Nichols, K. Sharma, and M. Simoni. (2016) Bringing Smart Transport to Texans: Ensuring the Benefits of a Connected and Autonomous Transport System in Texas — Final Report. Texas Department of Transportation report FHWA/TX-16/o-6838-2.

### *Invited Presentations*

“The Future of Data Science in Healthcare”, Panel Discussion, Machine Learning Week 2023, Las Vegas, NV, June 21, 2023.

“Predictive Analytics to Improve Healthcare Resource Utilization: A Case Study in Predicting Patient Discharge Type”, Machine Learning Week 2023, Las Vegas, NV, June 21, 2023.

“Exploiting Correlation for Profit and Efficiency”, Brown University, Department of Computer Science, Providence, RI, April 20, 2021.

### *Selected Presentations*

From Dynamic Pricing to Dynamic Stackelberg Games: Going Beyond the No Learning Theorem, INFORMS 2023, Phoenix, AZ, October 17, 2023. (Oral Presentation)

Polynomial Time Approximately Optimal Correlated Mechanism Design Using Constrained Proper Scoring Rules, ISF 2023, Charlottesville, VA, June 28, 2023. (Oral Presentation)

Polynomial Time Approximately Optimal Correlated Mechanism Design, INFORMS 2022, Indianapolis, IN, October 18, 2022. (Oral Presentation)

Minimum Revenue Socially Efficient Mechanisms Under Correlated Valuations, Society for the Advancement of Economic Theory 2022, Canberra, CA, July 19, 2022. (Oral Presentation)

Minimum Revenue Socially Efficient Mechanisms Under Correlated Valuations, Advances in Decision Analysis 2022, Washington DC, June 22, 2022. (Oral Presentation)

Provable Lower Bounds for Black Box Mechanism Design, INFORMS 2021, Anaheim, CA, October 25, 2021. (Oral Presentation)

Minimum Revenue Socially Efficient Mechanisms Under Correlated Valuations, INFORMS 2019, Seattle, WA, October 22, 2019. (Oral Presentation)

Learning Mechanisms for Correlated Settings, Simons Institute, Stanford, CA, October 2nd, 2019 (Oral Presentation)

Data Driven Mechanism Design, Human Machine Intelligence, Charlottesville, VA, March 18, 2019. (Oral Presentation)

Mechanism Design with Correlated Valuations: Efficient Methods for Revenue Maximization, Microsoft Research New York, New York, NY, March 13, 2019. (Oral Presentation)

Mechanism Design with Correlated Valuations: Efficient Methods for Revenue Maximization, INFORMS 2018, Phoenix, AZ, November 4, 2017. (Oral Presentation)

Complexity of Scheduling Charging in the Smart Grid, International Joint Conference on Artificial Intelligence (IJCAI-18), July 14, 2018. (Oral Presentation)

Traffic Optimization for a Mixture of Self-Interested and Compliant Agents, International Symposium on Artificial Intelligence and Mathematics (ISAIM-18), Fort Lauderdale, FL, January 4, 2018. (Oral Presentation)

Mechanism Design with Correlated Valuations: Efficient Methods for Revenue Maximization, INFORMS 2017, Houston, TX, November 4, 2017. (Oral Presentation)

Automated Design of Robust Mechanisms, Third Workshop on Algorithmic Game Theory and Data Science, Boston, MA, June 26, 2017. (Oral Presentation)

Automated Design of Robust Mechanisms, New York Computer Science and Economics Day (NYCE-17), New York, NY, May 19, 2017. (Poster Presentation)

Mechanism Design with Unknown Correlated Distributions: Can We Learn Optimal Mechanisms?, Sixteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-17), Sao Paulo, Brazil, May 10, 2017. (Oral Presentation)

Automated Design of Robust Mechanisms, Sixteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-17), Sao Paulo, Brazil, May 10, 2017. (Poster Presentation)

Automated Design of Robust Mechanisms, Thirtieth AAAI Conference on Artificial Intelligence (AAAI-17), San Francisco, CA, February 7, 2017. (Oral Presentation)

Maximizing Revenue with Limited Correlation: The Cost of Ex-Post Incentive Compatibility, Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-16), Phoenix, AZ, February 14, 2016. (Oral Presentation)

Assessing the Robustness of Cremer-McLean with Automated Mechanism Design, Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15), Austin, TX, January 29, 2015. (Oral Presentation)

Executive Compensation and Firm Leverage, Financial Management Association Annual Meeting, October 18, 2014.

Executive Compensation and Firm Leverage, Multinational Finance Society Annual Meeting, June 29, 2014.

Executive Compensation and Firm Leverage, European Financial Management Association Annual Meeting, June 25, 2014.

Executive Compensation and Firm Leverage, The Ohio State University, November 6, 2013.

Executive Compensation and Firm Leverage, Instituto Tecnológico Autónomo de México, February 5, 2013.

Executive Compensation and Firm Leverage, University of Hawaii, January 15, 2013.

Executive Compensation and Firm Leverage, Trans-Atlantic Doctoral Conference, London Business School, May 12, 2012.

Financial Development, Intellectual Property Rights, and Growth, Trans-Atlantic Doctoral Conference, London Business School, May 11, 2011.

Adaptive Mesh Modeling and Barrier Option Pricing, Financial Management Association, October 18, 2007.

## Awards and Honors

Wells Fargo Award for Research, Darden 2023.

Nominated for the Outstanding Faculty Award - University of Virginia Darden School of Business 2021.

Batten Institute Research Grant - "Strictly Incentive Compatible Mechanism Design Using Deep Neural Networks" - Principle Investigator

3Cavaliers Grant - "Incentive Compatible Multi-Round Mechanism Design to Ensure Quality Data Generation from Users" - Principle Investigator

Duke University Graduate Fellowship 2007-2012.

James Madison University Faculty Award, top graduate of James Madison University 2006.

Outstanding Graduate in Mathematics, James Madison University, 2006.

Outstanding Graduate in Quantitative Finance, James Madison University, 2006.

Shelley Wheeler Scholarship in Quantitative Finance, Outstanding Junior in Quantitative Finance, 2005.

James Roberts Scholarship in Mathematics, Outstanding Junior in Mathematics, 2005.

Eagle Scout, 2000.

## Teaching

### University of Virginia (Instructor)

GBUS 8496: Data Science in Business, 2018 - Present

GBAC 7205: Data Analytics I, 2019 - Present

SYS 6018: Data Mining, 2019 - Present

### Duke University (Instructor)

CPS 590.2 - Computation, Information, and Learning in Mechanism Design, 2017.

**The Ohio State University** (Instructor)

BUSFIN 4252 - International Finance for Undergraduates, 2013-2014.

BUSFIN 7250 - International Finance for MBAs, 2013-2014.

**Duke University** (Teaching Assistant)

Global Asset Allocation, MBA, Duke University, Professor: Doug Breeden, 2010.

Derivatives, MBA, Duke University, Professor: Adriano Rampini, 2008-2012.

Advanced Corporate Finance, MBA, Duke University, Professor: S. Viswanathan, 2008-2012.

Foundations of Corporate Finance, MMS, Duke University, Professor: David Robinson, 2012.

Global Financial Management, MBA, Duke University, Professor: David Hsieh, 2008-2012

## Selected Professional Service

Program Committee Member: The Twenty-Fourth ACM Conference on Economics and Computation (EC23)

Organized the Job Fair at the Thirty-Sixth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI22)

Program Committee Member: Thirty-Sixth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI22)

Program Committee Member: Thirtieth International Joint Conference on Artificial Intelligence (IJ-CAI21)

Organized the Job Fair at the Thirty-Fifth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI21)

Program Committee Member: Thirty-Fifth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI21)

Program Committee Member: Twenty-ninth International Joint Conference on Artificial Intelligence (IJCAI20)

Organized the Job Fair at the Thirty-Fourth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI20)

Program Committee Member: Thirty-Fourth Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI20)

Program Committee Member: Twenty-Eighth International Joint Conference on Artificial Intelligence (IJCAI19)

Program Committee Member: Eighteenth Autonomous Agents and Multi-Agent Systems Conference (AAMAS19)

Program Committee Member: Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI18) (Distinguished Program Committee Member)

Co-organizing (with Guni Sharon) a special session at the International Symposium on Artificial Intelligence and Mathematics (ISAIM-2018) on “Flow Optimization in Traffic Networks” to be held in January 2018 in Ft. Lauderdale, Florida.

Program Committee Member: Thirty-Second Association for the Advancement of Artificial Intelligence Conference on Artificial Intelligence (AAAI18)

Program Committee Member: Ninth International Workshop on Agents in Traffic and Transportation (ATT2016)

Ad hoc referee: Journal of Empirical Finance, European Journal of Operations Research

Author of several Texas Department of Transportation technical memos on the potential impact of mechanism design to congestion management for autonomous vehicles

Help to organize and participated in a multi-disciplinary seminar series for computer science and economics at Duke University

Helped to organize and participated in Explore UT, an annual open house that provides an opportunity for the public to engage with the research at UT Austin

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