

Yisong Yue

- Contact Information** California Institute of Technology *website: www.yisongyue.com*
1200 E. California Blvd. *email: yyue@caltech.edu*
CMS, 305-16
Pasadena, CA 91125
- Research Interests** Theory and application of statistical machine learning, with a particular focus on developing novel methods for spatiotemporal reasoning, structured prediction, interactive learning systems, and learning with humans in the loop.
- Research Appointments**
- California Institute of Technology** *September 2014 -*
Position: Assistant Professor
 - Disney Research** *August 2013 - August 2014*
Position: Research Scientist
 - Carnegie Mellon University** *September 2010 - August 2013*
Position: Postdoctoral Researcher
Supervisors: Carlos Guestrin and Ramayya Krishnan
 - Cornell University** *May 2006 - August 2010*
Position: Research Assistant
Supervisors: Thorsten Joachims and Robert Kleinberg
 - Google** *June 2009 - September 2009*
Position: Search Quality Analyst Intern
Supervisor: Rajan Patel
 - Microsoft Research** *May 2007 - August 2007*
Position: Research Intern
Supervisor: Christopher Burges
- Education**
- Cornell University** *2005 - 2010*
Ph.D. in Computer Science
Graduate Minor in Statistics
Dissertation: New Learning Frameworks for Information Retrieval
Thesis Committee: Thorsten Joachims (advisor), Robert Kleinberg, Christopher Burges, Ping Li, John Hopcroft
 - University of Illinois at Urbana-Champaign** *2001 - 2005*
Bachelor of Science in Computer Science
Graduated with Highest Honors (Summa Cum Laude)
 - Illinois Math and Science Academy** *1998 - 2001*
- Honors and Awards**
- Microsoft Research Graduate Fellowship, 2008-2010
 - Google Student Award Winner, NYAS Machine Learning Symposium, 2009
 - Yahoo! Key Scientific Challenges Award, 2008

Outstanding TA Award, Cornell Department of Computer Science, 2006, 2007
Dean's List, UIUC College of Engineering, 2002, 2003, 2004, 2005
Finalist, Scientific Blogging University Writing Competition, 2009

Software & Data

Collaborative Clustering http://projects.yisongyue.com/collab_cluster/

Collaborative clustering dataset collected from users organizing attractions in Paris.

Ambulance Allocation http://projects.yisongyue.com/ambulance_allocation/

Emergency medical request dataset collected and processed from a real city.

SVM-map Software <http://projects.yisongyue.com/svmmmap/>

Software package for structural support vector machine training to optimize for mean average precision.

SVM-div Software <http://projects.yisongyue.com/svmdiv/>

Software package for structural support vector machine training for diversified retrieval.

SVM-sle Software <http://projects.yisongyue.com/svmsle/>

Software package for structural support vector machine training to classify sentiment with latent explanations.

Advising

Postdocs Supervised

- Yuxin Chen, active
- Taehwan Kim, active
- Yanan Sui, active
- Romann Weber, now Research Scientist at Disney Research

Ph.D. Thesis Committee Chair

- Stephan Zheng, California Institute of Technology, active

Ph.D. Thesis Committee Member

- Dawna Bagherian, California Institute of Technology, active
- Armeen Taeb, California Institute of Technology, active
- Utkan Candogan, California Institute of Technology, active
- Mason McGill, California Institute of Technology, active
- Daniel Naftalovich, California Institute of Technology, active
- Zachary Wu, California Institute of Technology, active
- Ellen Feldman, California Institute of Technology, active
- Yong Shen Soh, California Institute of Technology, active
- Kevin Yang, California Institute of Technology, active
- Ramya Vinayak, California Institute of Technology, active
- David Hall, California Institute of Technology, Ph.D. 2017
- Ron Appel, California Institute of Technology, Ph.D. 2017
- Yanan Sui, California Institute of Technology, Ph.D. 2017
- John Bruer, California Institute of Technology, Ph.D. 2017
- Krzysztof Chalupka, California Institute of Technology, Ph.D. 2016

- Eyrún Eyjólfssdóttir, California Institute of Technology, Ph.D. 2016
- Taehwan Kim, Toyota Technological Institute at Chicago, Ph.D. 2016
- Hastagiri P. Vanchinathan, ETH Zürich, Ph.D. 2016
- Carlos Gonzalez, California Institute of Technology, Ph.D. 2015

Teaching

Machine Learning & Data Mining. Core machine learning and data mining course offered to graduate students and advanced undergraduates. Taught at Caltech: Winter 2015, Winter 2016, Winter 2017.

Advanced Topics in Machine Learning. Advanced course on contemporary research topics in machine learning. Taught at Caltech: Spring 2016.

Projects in Machine Learning. Project-based course matching students to mentors on projects of mutual interest. Taught at Caltech: Fall 2016.

Tutorials

- “Practical Online Retrieval Evaluation.” co-taught with Filip Radlinski, SIGIR '11 Tutorial, Beijing, China, July 2011.
- “Learning to Rank.” co-taught with Filip Radlinski, NESCAI '08 Tutorial, Ithaca, NY, May 2008
- “An Introduction to Structured Output Learning Using Support Vector Machines.” Microsoft Research Web Learning Group, Redmond, WA, August 2007.

Professional Activities

Organizing Committee

- Fundraising Chair, AISTATS 2016

Journal Reviewing

- Data Mining and Knowledge Discovery
- Information Processing & Management
- Information Retrieval
- Journal of Artificial Intelligence Research
- Neural Networks
- Transactions on Knowledge and Data Engineering
- Transactions on the Web

Conference Reviewing

- AAAI 2014, 2015, 2017 (SPC)
- ACL 2012
- ACML 2011, 2012, 2014
- CIKM 2012
- COLING 2010, 2014
- COLT 2015
- ECML/PKDD 2008
- EMNLP 2011, 2012
- ICML 2007, 2008, 2009, 2010, 2011, 2012, 2013 (AC), 2014, 2016 (AC), 2017 (AC)
- IJCAI 2016 (SPC)
- KDD 2011, 2015 (SPC), 2016 (SPC), 2017 (SPC)
- NAACL-HLT 2012, 2013

- NIPS 2008, 2009, 2010, 2011, 2012, 2014, 2015, 2016
- SIGIR 2008, 2009, 2010, 2013, 2014
- SoCG 2010
- UBICOMP 2014
- UIST 2015
- WSDM 2011, 2012, 2013, 2014, 2015, 2016 (SPC)
- WWW 2011, 2012, 2013, 2014, 2017

Book Reviewing & Editing

- Introduction to Information Retrieval, Chapter 18, Matrix decompositions & latent semantic indexing

Other Service

Southern California Machine Learning Symposium, @Caltech, November 2016

Large-Scale Sports Analytics Workshop, @KDD 2014, @KDD 2015, @KDD 2016

Personalization Workshop, @NIPS 2014, @ICML 2016

Reflections Projections 2004

<http://www.acm.uiuc.edu/conference>

Illini Book Exchange

<http://www.illinibookexchange.com>

Invited Articles

Thorsten Joachims, Thomas Hofmann, Yisong Yue, Chun-Nam Yu. (2009). “Predicting Structured Objects with Support Vector Machines.” *Communications of the ACM (CACM)*, Research Highlight, 52(11), 97–104, November 2009.

Journal Papers

Siyuan Liu, Yisong Yue, Ramayya Krishnan. (2015) “Non-Myopic Adaptive Route Planning in Uncertain Congestion Environments.” *IEEE Transactions on Knowledge Discovery and Engineering (TKDE)*, 27(9), 2438–2451, DOI:10.1109/TKDE.2015.2411278, September, 2015.

Yisong Yue, Josef Broder, Robert Kleinberg, Thorsten Joachims. (2012) “The K -armed Dueling Bandits Problem.” *Journal of Computer and System Sciences (JCSS)*, Special Issue on Learning Theory, DOI:10.1016/j.jcss.2011.12.028, May, 2012.

Olivier Chapelle, Thorsten Joachims, Filip Radlinski, Yisong Yue. (2012) “Large Scale Validation and Analysis of Interleaved Search Evaluation.” *ACM Transactions on Information Systems (TOIS)*, 30(1), 6:1–6:41, February, 2012.

Conference Papers

Yanan Sui, Yisong Yue, Joel Burdick. (2017) “Correlational Dueling Bandits with Application to Clinical Treatment in Large Decision Spaces.” In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, Melbourne, Australia, August 2017.

Yanan Sui, Vincent Zhuang, Joel Burdick, Yisong Yue. (2017). “Multi-dueling Bandits with Dependent Arms.” In *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, Sydney, Australia, August 2017.

Hoang M. Le, Yisong Yue, Peter Carr, Patrick Luecy. (2017) “Coordinated Multi-Agent Imitation Learning.” In *Proceedings of the International Conference on Machine Learning (ICML)*, Sydney, Australia, August 2017.

- Sarah Taylor, Taehwan Kim, Yisong Yue, Moshe Mahler, James Krahe, Anastasio Garcia Rodriguez, Jessica Hodgins, Iain Matthews. (2017) “A Deep Learning Approach to Generalized Speech Animation.” In Proceedings of the ACM Conference on Computer Graphics (SIGGRAPH), Los Angeles, CA, July 2017.
- Zhiwei Deng, Rajitha Navarathna, Peter Carr, Stephan Mandt, Yisong Yue, Iain Matthews and Greg Mori. (2017) “Factorized Variational Autoencoders for Modeling Audience Reactions to Movies.” In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Honolulu, Hawaii, July, 2017.
- Eyrún Eyjólfssdóttir, Kristin Branson, Yisong Yue, Pietro Perona. (2017) “Learning recurrent representations for hierarchical behavior modeling.” In Proceedings of the International Conference on Learning Representations (ICLR), Toulon, France, April, 2017.
- Hoang M. Le, Peter Carr, Yisong Yue, Patrick Lucey. (2017) “Data-Driven Ghosting using Deep Imitation Learning.” In Proceedings of the MIT Sloan Sports Analytics Conference (SSAC), Cambridge, MA, March, 2017.
- Matteo Ronchi, Joon Sik Kim, Yisong Yue. (2016) “A Rotation Invariant Latent Factor Model for Movement Discovery from Static Poses.” In Proceedings of the IEEE International Conference on Data Mining (ICDM), Barcelona, Spain, December, 2016.
- Stephan Zheng, Yisong Yue, Patrick Lucey. (2016) “Generating Long-term Trajectories Using Deep Hierarchical Networks.” In Proceedings of Neural Information Processing Systems (NIPS), Barcelona, Spain, December, 2016.
- Jianhui Chen, Hoang M. Le, Peter Carr, Yisong Yue, James J. Little. (2016) “Learning Online Smooth Predictors for Real-time Camera Planning using Recurrent Decision Trees.” In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Las Vegas, NV, June, 2016.
- Hoang M. Le, Andrew Kang, Yisong Yue, Peter Carr. (2016) “Smooth Imitation Learning for Online Sequence Prediction.” In Proceedings of the International Conference on Machine Learning (ICML), New York City, NY, June, 2016.
- Long Sha, Patrick Lucey, Yisong Yue, Peter Carr, Charlie Rohlf, Iain Matthews. (2016) “Chalkboarding: A New Spatiotemporal Query Paradigm for Sports Play Retrieval.” In Proceedings of the ACM Conference on Intelligent User Interfaces (IUI), Sonoma, CA, March, 2016.
- Bryan He, Yisong Yue. (2015) “Smooth Interactive Submodular Set Cover.” In Proceedings of Neural Information Processing Systems (NIPS), Montreal, QC, Canada, December, 2015.
- Taehwan Kim, Yisong Yue, Sarah Taylor, Iain Matthews. (2015) “A Decision Tree Framework for Spatiotemporal Sequence Prediction.” In Proceedings of the ACM Conference on Knowledge Discovery and Data Mining (KDD), Sydney, Australia, August, 2015.
- Alina Bialkowski, Patrick Lucey, Peter Carr, Yisong Yue, Sridha Sridharan, Iain Matthews. (2014) “Large-Scale Analysis of Soccer Matches using Spatiotemporal Tracking Data.” In Proceedings of the IEEE International Conference on Data Mining (ICDM), Shenzhen, China, December, 2014.
- Yisong Yue, Patrick Lucey, Peter Carr, Alina Bialkowski, Iain Matthews. (2014). “Learning Fine-Grained Spatial Models for Dynamic Sports Play Prediction.” In Proceedings of the IEEE International Conference on Data Mining (ICDM), Shenzhen, China, December, 2014.
- Yisong Yue, Chong Wang, Khalid El-Arini, Carlos Guestrin. (2014). “Personalized Collaborative Clustering.” In Proceedings of the International World Wide Web Conference (WWW), Seoul, South Korea, April, 2014.

Alina Bialkowski, Patrick Lucey, Peter Carr, Yisong Yue, Iain Matthews. (2014). “Win at Home and Draw Away: Automatic Formation Analysis Highlighting the Differences in Home and Away Team Behaviors.” In Proceedings of the MIT Sloan Sports Analytics Conference (SSAC), Cambridge, MA, USA, February, 2014.

Patrick Lucey, Alina Bialkowski, Peter Carr, Yisong Yue, Iain Matthews. (2014). “How to Get an Open Shot: Analyzing Team Movement in Basketball using Tracking Data.” In Proceedings of the MIT Sloan Sports Analytics Conference (SSAC), Cambridge, MA, USA, February, 2014.

Siyuan Liu, Yisong Yue, Ramayya Krishnan. (2013). “Adaptive Collective Routing Using Gaussian Process Dynamic Congestion Models.” In Proceedings of the ACM Conference on Knowledge Discovery and Datamining (KDD), Chicago, IL, USA, August, 2013.

Stephane Ross, Jiaji Zhou, Yisong Yue, Debadeepta Dey, J. Andrew Bagnell. (2013). “Learning Policies for Contextual Submodular Prediction.” In Proceedings of the International Conference on Machine Learning (ICML), Atlanta, GA, USA, June, 2013.

Yisong Yue, Lavanya Marla, Ramayya Krishnan. (2012). “An Efficient Simulation-based Approach to Ambulance Fleet Allocation and Dynamic Redeployment.” In Proceedings of AAAI Conference on Artificial Intelligence (AAAI), Special Track on Computational Sustainability and Artificial Intelligence, Toronto, ON, Canada, July, 2012.

Yisong Yue, Sue Ann Hong, Carlos Guestrin. (2012). “Hierarchical Exploration for Accelerating Contextual Bandits.” In Proceedings of International Conference on Machine Learning (ICML), Edinburgh, Scotland, June, 2012.

Yisong Yue, Carlos Guestrin. (2011). “Linear Submodular Bandits and their Application to Diversified Retrieval.” In Proceedings of Neural Information Processing Systems (NIPS), Granada, Spain, December, 2011.

Yisong Yue, Thorsten Joachims. (2011). “Beat the Mean Bandit.” In Proceedings of the International Conference on Machine Learning (ICML), Bellevue, WA, USA, June, 2011.

Christina Brandt, Thorsten Joachims, Yisong Yue, Jacob Bank. (2011). “Dynamic Ranked Retrieval.” In Proceedings of the ACM Conference on Web Search and Data Mining (WSDM), Hong Kong, China, February, 2011.

Ainur Yessenalina, Yisong Yue, Claire Cardie. (2010). “Multi-level Structured Models for Document-level Sentiment Classification.” In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), Cambridge, MA, USA, October, 2010.

Yisong Yue, Yue Gao, Olivier Chapelle, Ya Zhang, Thorsten Joachims. (2010). “Learning More Powerful Test Statistics for Click-Based Retrieval Evaluation.” In Proceedings of the ACM Conference on Information Retrieval (SIGIR), Geneva, Switzerland, July, 2010.

Yisong Yue, Rajan Patel, Hein Roehrig. (2010). “Beyond Position Bias: Examining Result Attractiveness as a Source of Presentation Bias in Clickthrough Data.” In Proceedings of the International World Wide Web Conference (WWW), Raleigh, NC, USA, April, 2010.

Yisong Yue, Josef Broder, Robert Kleinberg, Thorsten Joachims. (2009). “The K -armed Dueling Bandits Problem.” In Proceedings of the Conference on Learning Theory (COLT), Montreal, QC, Canada, June, 2009.

Yisong Yue, Thorsten Joachims. (2009). “Interactively Optimizing Information Retrieval Systems as a Dueling Bandits Problem.” In Proceedings of the International Conference on Machine Learning (ICML), Montreal, QC, Canada, June, 2009.

Yisong Yue, Thorsten Joachims. (2008). “Predicting Diverse Subsets Using Structural SVMs.” In Proceedings of the International Conference on Machine Learning (ICML), Helsinki, Finland, July, 2008.

Yisong Yue, Thomas Finley, Filip Radlinski, Thorsten Joachims. (2007). “A Support Vector Method for Optimizing Average Precision.” In Proceedings of the ACM Conference on Information Retrieval (SIGIR), Amsterdam, The Netherlands, July, 2007.

**Selected
Workshop
Papers**

Kaushik Krishnan, Lavanya Marla, Yisong Yue. (2016) “Robust Ambulance Allocation Using Risk-based Metrics.” COMSNETS 2016 Workshop on Intelligence Transportation Systems, Bangalore, India, January, 2016.

Stephan Zheng, Yisong Yue. (2015) “Scalable Training of Interpretable Spatial Latent Factor Models.” NIPS 2015 Workshop on Non-convex Optimization for Machine Learning, Montreal, QC, Canada, December, 2015.

Alina Bialkowski, Patrick Lucey, Peter Carr, Yisong Yue, Sridha Sridharan, Iain Matthews. (2014) “Identifying Team Style in Soccer using Formations Learned from Spatiotemporal Tracking Data.” ICDM International Workshop on Spatial and Spatio-temporal Data Mining (SSTD), Shenzhen, China, December, 2014.

Jiaji Zhou, Stephane Ross, Yisong Yue, Debadeepta Dey, J. Andrew Bagnell. “Knapsack Constrained Contextual Submodular List Prediction with Application to Multi-document Summarization.” ICML Workshop on Inferring: Interactions between Inference and Learning, Atlanta, GA, June, 2013.

Yisong Yue. (2009). “Online Gradient Descent using Interactive User Feedback.” NIPS Workshop on Analysis and Design of Algorithms for Interactive Machine Learning, Whistler, Canada, December, 2009.

Yisong Yue, Thorsten Joachims. (2008). “Interactively Optimizing Information Systems as a Dueling Bandits Problem.” NIPS Workshop on Beyond Search: Computational Intelligence for the Web, Whistler, Canada, December, 2008.

Yisong Yue, Christopher Burges. (2007). “On Using Stochastic Perturbation Stochastic Approximation for Learning to Rank; and, the Empirical Optimality of LambdaRank.” NIPS Workshop on Machine Learning for the Web, Whistler, Canada, December, 2007.

**Additional
Presentations**

“The Dueling Bandits Problem.”

- SDM 2017 Machine Learning Methods for Recommender Systems Workshop, Houston, TX, April, 2017
- Carnegie Mellon University, Pittsburgh, PA, October, 2016
- Algorithms for Human Machine Interaction Workshop, Berkeley, CA, November, 2015
- University of California San Diego, La Jolla, CA, October, 2015
- University of Illinois at Chicago, Chicago, IL, October, 2015
- Data-Driven Algorithmics Workshop, Cambridge, MA, September, 2015

“Learning to Optimize for Structured Output Spaces.”

- University of California Santa Barbara, Santa Barbara, CA, April 2017
- California Institute of Technology, Pasadena, CA, January, 2017
- Jet Propulsion Laboratory, Pasadena, CA, November, 2016
- Carnegie Mellon University, Pittsburgh, PA, October, 2016

“Building Predictive Behavioral Models via Large Scale Imitation Learning.”

- Machine Learning and Human Behavior Symposium, Irvine, CA, March, 2017

“A Decision Tree Framework for Data-Driven Speech Animation.”

- STATS LLC, Chicago, IL, October, 2016
- Carnegie Mellon University, Pittsburgh, PA, March, 2016
- USC Information Sciences Institute, Los Angeles, CA, January, 2016
- ETH Zürich, Zürich, Switzerland, December, 2015
- University of Southern California, Los Angeles, CA, October, 2015

“Machine Learning for Sports, Animation & Medicine.”

- Reflections Projections, Urbana, IL, October, 2015

“Machine Learning for Personalized Clustering.”

- NIPS 2014 Workshop on Human Propelled Machine Learning, Montreal, QC, Canada, December, 2014
- Carnegie Mellon University, Pittsburgh, PA, October, 2014

“Balancing the Explore/Exploit Tradeoff in Interactive Structured Prediction.”

- Cornell University, Ithaca, NY, December, 2014
- University of California Irvine, Irvine, CA, November, 2014
- California Institute of Technology, Pasadena, CA, October, 2014
- NIPS 2013 Workshop on Discrete and Combinatorial Problems in Machine Learning, South Lake Tahoe, NV, December, 2013

“Automated Decision Making Under Uncertainty: Applications to Urban Transportation Systems and Beyond.”

- NYU CUSP Workshop on Social Media and Peer Networks, New York City, NY, July 2013

“Learning with Humans in the Loop.”

- Disney Research, Pittsburgh, PA, May, 2013
- University of Virginia, Charlottesville, VA, April 2013
- University of California Los Angeles, Los Angeles, CA, April 2013
- Yale University, New Haven, CT, April 2013
- University of Michigan, Ann Arbor, MI, March 2013
- Washington University in St. Louis, St. Louis, MO, March 2013
- Microsoft Research, Redmond, WA, March 2013
- University of Utah, Salt Lake City, UT, March 2013
- California Institute of Technology, Pasadena, CA, March 2013
- Dartmouth College, Hanover, NH, February 2013
- University of Maryland, College Park, MD, February 2013
- Purdue University, West Lafayette, IN, February 2013
- University of Rochester, Rochester, NY, February 2013
- Harvard University, Cambridge, MA, February 2013
- Johns Hopkins University, Baltimore, MD, February 2013
- Northeastern University, Boston, MA, February 2013
- Boston University, Boston, MA, February 2013

- University of Connecticut, Storrs, CT, January 2013
- “Optimizing Recommender Systems as a Submodular Bandits Problem.”
- Google, Mountain View, CA, June 2013
 - University of Toronto, Toronto, ON, Canada, November 2012
 - Stanford University, Stanford, CA, October 2012
 - University of California San Diego, La Jolla, CA, June 2012
 - Carnegie Mellon University, Pittsburgh, PA, March 2012
 - University of Washington, Seattle, WA, February 2012
- “An Introduction to Structural SVMs and its Application to Information Retrieval.”
- University of California Berkeley, Berkeley, CA, October 2012
 - Carnegie Mellon University, Pittsburgh, PA, November 2010
- “Practical and Reliable Retrieval Evaluation Through Online Experimentation.”
- WSDM 2012 Workshop on Web Search Click Data, Seattle, WA, February 2012
- “An Interactive Learning Approach to Optimizing Information Retrieval Systems.”
- Carnegie Mellon University, Pittsburgh, PA, September 2010
 - Yahoo! Research, Santa Clara, CA, August 2010
 - Google Zürich, Zürich, Switzerland, July 2010
 - Microsoft Research Asia, Beijing, China, June 2010
- “New Learning Frameworks for Information Retrieval.”
- Microsoft Research, Redmond, WA, March 2010
 - Google, Mountain View, CA, March 2010
 - Johns Hopkins University, Baltimore, MD, March 2010
 - Yahoo! Research, Sunnyvale, CA, February 2010
 - Carnegie Mellon University, Pittsburgh, PA, February 2010
 - Cornell University, Ithaca, NY, February 2010
 - IBM TJ Watson, Hawthorne, NY, December 2009
- “Interactively Optimizing Information Retrieval Systems as a Dueling Bandits Problem.”
- New York Academy of Sciences Machine Learning Symposium, New York, NY, November 2009
 - Cornell University, Ithaca, NY, February 2009
- “Diversified Retrieval as Structured Prediction.”
- Google, Mountain View, CA, August 2009
 - SIGIR 2009 Workshop on Redundancy, Diversity, and Interdocument Relevance, Boston, MA, July 2009
 - Cornell University, Ithaca, NY, April 2008
- “Towards Interactive Approaches to Learning to Rank.”
- SIGIR 2009 Workshop on Learning to Rank, Boston, MA, July 2009
- “Information Retrieval as Structured Prediction.”
- University of Massachusetts Amherst, Amherst, MA, April 2009

- Microsoft Research Asia, Beijing, China, August 2008

“A Support Vector Method for Optimizing Average Precision.”

- Microsoft Research Machine, Redmond, WA, July 2007
- Cornell University, Ithaca, NY, April 2007

**Funding
Sources**

NSF AitF: #1637598, “Algorithmic Challenges in Smart Grids: Control, Optimization & Learning”, \$750K, October 2016 to September 2020.

Bloomberg Data Science Research Grant, \$60K, November, 2016.

Gift from Northrop Grumman, \$99K, June 2016.

JPL PDF: IAMS100224, “Risk-aware Machine Learning for Resilient Space Exploration”, \$150K, June, 2016.

NSF RI: Medium: #1564330, “Drosophila Behavior to Sports Analytics: Automated Discovery of Macro-Variables from Raw Spatiotemporal Data”, \$1.1M, May, 2016 to April, 2020.

Gift from Disney Research, \$225K, June 2015.