Marek Petrik

CONTACT	Department of Computer Science	*Tel:* (+1)-603-862-2682
	University of New Hampshire	*Email:* mpetrik@cs.unh.edu
	Durham, NH	*Web:* http://cs.unh.edu/˜mpetrik

RESEARCH INTERESTS

Robust and risk-averse reinforcement learning and decision making.

EMPLOYMENT

⬦ **Associate Professor**, Computer Science Department, University of New Hampshire, Durham, NH
(August 2022 – present)

⬦ **Visiting Faculty Research Scientist**, Google Research, Mountain View, CA (September 2022 – June 2023)

⬦ **Assistant Professor**, Computer Science Department, University of New Hampshire, Durham, NH
(August 2016 – July 2022)

⬦ **Research Staff Member**, IBM T.J. Watson Research Center, Yorktown, NY
(December 2011 – August 2016)
Business Analytics/Solutions and Mathematical Sciences

- · Precision agriculture, forecasting and optimization
- · Online recommender and personalization system
- · Robust supply chain optimization, revenue management, customer models

⬦ **Postdoctoral Researcher**, IBM T.J. Watson Research Center, Yorktown, NY
(July 2010 – November 2011)
Department of Business Analytics and Mathematical Sciences

- · Supply chain optimization and disaster response

⬦ **Research/Teaching Assistant**, University of Massachusetts Amherst
(September 2005 – June 2010)
Resource bounded reasoning lab

⬦ **Researcher and Developer**, Whitestein Technologies
(October 2003 – August 2005)
Optimization of large-scale production and transport processes.

- · Research on Multi-agent systems and optimization
- · Combinatorial optimization for production planning and vehicle routing

⬦ **Programmer**, OneTwoTech (June 2001 – June 2003)
Design, implementation and evaluation of new technologies for a web-application server, using: Advanced .NET Framework, COM+, MS SQL Server, Web Services

⬦ **Programmer** SWTeam (July 2000 – July 2001) Implementation of high performance components for client-side data management for multi-dimensional (OLAP) databases using: C++, MS SQL.

EDUCATION

◇ **University of Massachusetts Amherst**, Amherst, MA, USA. (2005 – 2010)
Ph.D. in Computer Science: September 1, 2010, GPA: 4.0/4.0
Advisor: Shlomo Zilberstein
Thesis: Optimization-based Approximate Dynamic Programming
Committee: Shlomo Zilberstein, Andrew Barto, Sridhar Mahadevan, Ana Muriel, Ronald Parr

◇ **University of Massachusetts Amherst**, Amherst, MA, USA. (2005 – 2008)
M.Sc. in Computer Science, May 2008, GPA: 4.0/4.0

◇ **Univerzita Komenskeho**, Bratislava, Slovakia. (2000 – 2005)
B.Sc. in Computer Science, graduated: June 2005
Major in *Artificial Intelligence* and *Parallel Algorithms*
GPA: 3.84/4.0 Graduation thesis: *Learning Parallel Portfolios of Algorithms*

JOURNAL
ARTICLES

◇ Lisa N. Scott, Sean M. Smith, John S. Gunn, Marek Petrik, Mark J. Ducey, Thomas S. Buchholz, Ethan P. Belair, *Salvage decision-making based on carbon following an eastern spruce budworm outbreak*, Front. For. Glob. Change, 6, 2023.

◇ Chin Pang Ho, Marek Petrik, Wolfram Wiesemann, *Partial Policy Iteration For L_1-Robust Markov Decision Processes*, Journal of Machine Learning Research, 22(275):1–46, 2021.

◇ Shannon Stang, Masoumeh Khalkhalia, Marek Petrik, Michael Palace, Zhongming Lu, Weiwei Mo, *Spatially optimized distribution of household rainwater harvesting and greywater recycling systems*, Journal of Cleaner Production 312:20, 2021.

◇ Matthew R. Argall, Colin Small, Samantha Piatt, Liam Breen, Marek Petrik, and others, *MMS SITL Ground Loop: Automating the burst data selection process*, Frontiers in Astronomy and Space Sciences 7, 2020.

◇ Kathryn Kaspar, Erin Santini-Bell, Marek Petrik, Masoud Sanayei, *Comparison Between a Linear Regression and an Artificial Neural Network Model to Detect and Localize Damage in the Powder Mill Bridge*, Transportation Research Record: Journal of the Transportation Research Board, 2020.

◇ Bo Liu, Ian Gemp, Mohammad Ghavamzadeh, Ji Liu, Sridhar Mahadevan, Marek Petrik, *Proximal Gradient Temporal Difference Learning: Stable Reinforcement Learning with Polynomial Sample Complexity*, Journal of Artificial Intelligence Research 63:462-493, 2018.

◇ Dan Iancu, Marek Petrik, Dharmashankar Subramanian, *Tight approximations of dynamic risk measures*, Mathematics of Operations Research 40(3), 2015.

◇ Amit Dhurandhar, Marek Petrik, *Efficient and accurate methods for updating generalized linear models with multiple feature additions*, Journal of Machine Learning Research 15:2607–2627, 2014.

◇ Markus Ettl, Prateek Jain, Ronny Luss, Marek Petrik, Rajesh Ravi, Chitra Venkatramani, *Combining social media and customer behavior analytics for personalized customer engagements*, IBM Journal of Research and Development 58(5/6):7:1-7:12, 2014.

◇ Marek Petrik and Shlomo Zilberstein, *Robust approximate bilinear programming for value function approximation*, Journal of Machine Learning Research 12:3027–3063, 2011.

- ◇ Marek Petrik, *Optimization-based Approximate Dynamic Programming*, Ph.D. Dissertation 2010, University of Massachusetts Amherst.

- ◇ Marek Petrik and Shlomo Zilberstein, *A bilinear programming approach for multiagent systems*, Journal of Artificial Intelligence Research 35:235–274, 2009.

- ◇ Jeff Johns, Marek Petrik, and Sridhar Mahadevan, *Hybrid Least-Squares Algorithms for Approximate Policy Evaluation*, Machine Learning 76(2):243–256 and European Conference on Machine Learning (ECML), 2009.

- ◇ Marek Petrik and Shlomo Zilberstein, *Learning parallel portfolios of algorithms*, Annals of Mathematics and Artificial Intelligence, 48(1-2):85–106, 2006.

REFEREED
CONFERENCE
PUBLICATIONS

- ◇ Mohammad Ghavamzadeh, Marek Petrik, Guy Tennenholtz, *Bayesian Regret Minimization in Offline Bandits*, International Conference on Machine Learning, 2024.

- ◇ Gersi Doko, Daniel S. Brown, Marek Petrik, Guang Yang, *ROIL: Robust Offline Imitation Learning without Trajectories*, RL-Conference, 2024.

- ◇ Audrey Huang, Mohammad Ghavamzadeh, Nan Jiang, Marek Petrik, *Non-adaptive Online Finetuning for Offline Reinforcement Learning*, RL-Conference, 2024.

- ◇ Jia Lin Hau, Erick Delage, Mohammad Ghavamzadeh, Marek Petrik, *On Dynamic Programming Decompositions of Static Risk Measures in Markov Decision Processes*, Neural Information Processing Systems (NeurIPS), 2023.

- ◇ Julien Grand-Clement, Marek Petrik, *Reducing Blackwell and Average Optimality to Discounted MDPs via the Blackwell Discount Factor*, Neural Information Processing Systems (NeurIPS), 2023.

- ◇ Cyrus Cousins, Elita Lobo, Marek Petrik, Yair Zick, *Percentile Criterion Optimization in Offline Reinforcement Learning*, Neural Information Processing Systems (NeurIPS), 2023.

- ◇ Xihong Su, Marek Petrik, *Solving Multi-Model MDPs by Coordinate Ascent and Dynamic Programming*, Uncertainty in Artificial Intelligence (UAI), 2023.

- ◇ Qiuhao Wang, Chin Pang Ho, Marek Petrik, *Policy Gradient in Robust MDPs with Global Convergence Guarantee*, International Conference on Machine Learning (ICML), 2023.

- ◇ Jia Lin Hau, Marek Petrik, Mohammad Ghavamzadeh, *Entropic Risk Optimization in Discounted MDPs*, Artificial Intelligence and Statistics, 2023.

- ◇ Chin Pang Ho, Marek Petrik, Wolfram Wiesemann, *Robust Phi-divergence MDPs*, Neural Information Processing Systems, 2022.

- ◇ Elita Lobo, Harvineet Singh, Marek Petrik, Cynthia Rudin, Himabindu Lakkaraju, *Data poisoning attacks on off-policy policy evaluation methods*, Uncertainty in Artificial Intelligence, 2022. (Plenary)

- ◇ Bahram Behzadian, Marek Petrik, Chin Pang Ho, *Fast Algorithms for L_∞-constrained S-rectangular Robust MDPs*, Neural Information Processing Systems, 2021. (Acceptance rate: 26%)

- ◇ Mostafa Hussein, Brendan Crowe, Madison Clark, Marek Petrik, Momotaz Begum, *Robust Behavior Cloning with Adversarial Demonstration Detection*, International Conference on Intelligent Robots and Systems (IROS), 2021.

◇ Zaynah Javed, Daniel S. Brown, Satvik Sharma, Jerry Zhu, Ashwin Balakrishna, Marek Petrik, Anca D. Dragan, Ken Goldberg, *Policy Gradient Bayesian Robust Optimization for Imitation Learning*, International Conference on Machine Learning (ICML), 2021. (Acceptance rate: 21.5%)

◇ Bahram Behzadian, Reazul Russel, Chin Pang Ho, Marek Petrik, *Optimizing Percentile Criterion using Robust MDPs*, Conference on Artificial Intelligence and Statistics (AI-Stats) 2021. (Acceptance rate: 30%)

◇ Daniel S. Brown, Scott Niekum, Marek Petrik, *Bayesian Robust Optimization for Inverse Reinforcement Learning*, Advances in Neural Information Processing Systems (NeurIPS) 2020. (Acceptance rate: 20%)

◇ Maximilian Fickert, Tianyi Gu, Leonhard Staut, Wheeler Ruml, Joerg Hoffmann, and Marek Petrik, *Beliefs We Can Believe In: Replacing Assumptions with Data in Real-Time Search*, AAAI Conference on Artificial Intelligence, 2020. (Acceptance rate: 20.6%)

◇ Reazul Hasan Russel, Marek Petrik, *Beyond Confidence Regions: Tight Bayesian Ambiguity Sets for Robust MDPs*, Advances in Neural Information Processing Systems (NeurIPS), 2019. (Acceptance rate: 21%)

◇ Bahram Behzadian, Marek Petrik, *Fast Feature Selection for Linear Value Function Approximation*, International Conference on Automated Planning and Scheduling (ICAPS), 2019. (Acceptance rate: about 35%)

◇ Mostafa Hussein, Momotaz Begum, and Marek Petrik, *Inverse Reinforcement Learning of Interaction Dynamics from Demonstrations*, International Conference on Robotics and Automation (ICRA), 2019. (Acceptance rate: 44%)

◇ Andrew Mitchell, Wheeler Ruml, Fabian Spaniol, Joerg Hoffmann, Marek Petrik, *Real-time Planning as Decision-making Under Uncertainty*, AAAI Conference on Artificial Intelligence, 2019. (Acceptance rate: 16%)

◇ Andrea Tirinzoni, Xiangli Chen, Marek Petrik and Brian Ziebart, *Policy-Conditioned Uncertainty Sets for Robust Markov Decision Processes*, Neural Information Processing Systems (NIPS), 2018. (Acceptance rate: 20%, spotlight 3%)

◇ Ching Pang Ho, Marek Petrik, Wolfram Wiesemann, *Fast Bellman Updates for Robust MDPs*, International Conference on Machine Learning (ICML), 2018. (Acceptance rate: 24%)

◇ Bence Cserna, Marek Petrik, Reazul Hasan Russel, Wheeler Ruml, *Value Directed Exploration in Multi-Armed Bandits with Structured Priors*, Uncertainty in Artificial Intelligence (UAI), 2017. (Acceptance rate: 31%)

◇ Adam N. Elmachtoub, Ryan McNellis, Marek Petrik, *A Practical Method for Solving Contextual Bandit Problems Using Decision Trees*, Uncertainty in Artificial Intelligence (UAI), 2017. (Plenary presentation, Acceptance rate: 31%)

◇ Stephen Becker, Ban Kawas, Marek Petrik, *Robust Partially-Compressed Least-Squares*, National Conference of AAAI, 2017. (Acceptance rate: 25%)

◇ Marek Petrik, Yinlam Chow, Mohammad Ghavamzadeh, *Safe Policy Improvement by Minimizing Robust Baseline Regret*, Advances in Neural Information Processing Systems (NIPS) 2016. (Acceptance rate: 22%)

◇ Marek Petrik, Ronny Luss, *Interpretable Policies for Dynamic Product Recommendations*, Uncertainty in Artificial Intelligence (UAI) 2016. (Acceptance rate: 31%)

◇ Bo Liu, Ji Liu, Mohammad Ghavamzadeh, Sridhar Mahadevan, Marek Petrik, *Finite-Sample Analysis of Proximal Gradient TD Algorithms*, Uncertainty in Artificial Intelligence (UAI), 2015. (Best Student Paper Award) (Acceptance rate: 25 %)

◇ Marek Petrik, Xiaojian Wu, *Optimal Threshold Control for Energy Arbitrage with Degradable Battery Storage*, Uncertainty in Artificial Intelligence (UAI), 2015. (Acceptance rate: 25%)

◇ Marek Petrik, Dharmashankar Subramanian, *RAAM: The benefits of robustness in approximating aggregated MDPs in reinforcement learning*, Neural Information Processing Systems (NIPS), 2014. (Acceptance rate: spotlight 4.8%)

◇ Francisco Barahona, Markus Ettl, Marek Petrik, Peter Rimshnick, *Optimizing deliveries in agile supply chains with demand shocks*, Winter Simulation Conference, 2013.

◇ Janusz Marecki, Marek Petrik, Dharmashankar Subramanian, *Solution methods for constrained Markov decision process with continuous probability modulation*, Conference on Uncertainty in Artificial Intelligence (UAI), 2013. (Acceptance rate: 31%)

◇ Marek Petrik and Dharmashankar Subramanian, *An approximate solution method for large risk-averse Markov decision processes*, Conference on Uncertainty in Artificial Intelligence (UAI), 2012. (Acceptance rate: 31%)

◇ Marek Petrik, *Approximate dynamic programming by minimizing distributionally robust bounds*, International Conference on Machine Learning (ICML), 2012. (Acceptance rate: 27%)

◇ Marek Petrik and Shlomo Zilberstein, *Resource management using point-based dynamic programming*, Proceedings of the 25th Conference on Artificial Intelligence (AAAI), 2011. (Acceptance rate 24.8%)

◇ Marek Petrik, Gavin Taylor, Ron Parr, and Shlomo Zilberstein, *Feature selection using regularization in approximate linear programs for Markov decision processes*, Proceedings of the International Conference on Machine Learning (ICML) 27, 2010. (Acceptance rate: 26%)

◇ Marek Petrik and Shlomo Zilberstein, *Robust value function approximation using bilinear programming*, Proceedings of the Advances in Neural Information Processing Systems (NIPS) 22, 2009. (Acceptance rate — spotlight: 8%)

◇ Marek Petrik and Shlomo Zilberstein, *Constraint relaxation in approximate linear programs*, Proceedings of the International Conference on Machine Learning (ICML), 2009. (Acceptance rate 26%)

◇ Marek Petrik and Bruno Scherrer, *Biasing approximate dynamic programming with a lower discount factor*, Proceedings of the Advances in Neural Information Processing Systems (NIPS) 21, 2008. (Acceptance rate 27%)

◇ Marek Petrik and Shlomo Zilberstein, *Learning heuristic functions through approximate linear programming*, Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS), 2008. (Acceptance rate 34%)

◇ Martin Allen, Marek Petrik, and Shlomo Zilberstein, *Interaction structure and dimensionality in decentralized problem solving*, Proceedings of the Conference on Artificial Intelligence (AAAI) (Short Paper), 2008. (Acceptance rate 26%)

◇ Marek Petrik and Shlomo Zilberstein, *Anytime coordination using separable bilinear programs,* Proceedings of the Conference on Artificial Intelligence (AAAI), 2007. (Acceptance rate 27%)

◇ Marek Petrik *An analysis of Laplacian methods for value function approximation in MDPs,* Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2007 (Acceptance rate 16%)

◇ Marek Petrik and Shlomo Zilberstein, *Average-reward decentralized Markov decision processes,* Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2007 (Acceptance rate 16%)

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PEER-
REVIEWED
SYMPOSIA

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◇ Audrey Huang, Mohammad Ghavamzadeh, Nan Jiang, Marek Petrik, *Non-adaptive Online Finetuning for Offline Reinforcement Learning,* NeurIPS 2023 Workshop on Generalization in Planning.

◇ Cyrus Cousins, Elita Lobo, Marek Petrik, Yair Zick, *Percentile Criterion Optimization in Offline Reinforcement Learning,* European Workshop on Reinforcement Learning (EWRL), 2023.

◇ Elita Lobo, Harvineet Singh, Marek Petrik, Cynthia Rudin, Himabindu Lakkaraju, *Data poisoning attacks on off-policy policy evaluation algorithms,* ICLR Workshop PAIR, 2022.

◇ Gerard Donahue, Brendan Crowe, Marek Petrik, Daniel Brown, Soheil Gharatappeh, *Unbiased Efficient Feature Counts for Inverse RL,* NeurIPS Workshop on Safe and Robust Control of Uncertain Systems, 2021.

◇ Elita Lobo, Yash Chandak, Dharmashankar Subramanian, Josiah Hannah, Marek Petrik, *Behavior Policy Search for Risk Estimators in RL,* NeurIPS Workshop on Safe and Robust Control of Uncertain Systems, 2021.

◇ Elita Lobo, Mohammad Ghavamzadeh, Marek Petrik, *Soft-robust Algorithms for Batch Reinforcement Learning,* R2AW Workshop, IJCAI 2021.

◇ Mostafa Hussein, Marek Petrik, Brendan Crowe, Momotaz Begum, *Robust Maximum Entropy Behavior Cloning,* NeurIPS 3rd Robot Learning Workshop: Grounding Machine Learning Development in the Real World, 2020.

◇ Maximilian Fickert, Tianyi Gu, Leonhard Staut, Sai Lekyang, Wheeler Ruml, Joerg Hoffmann and Marek Petrik, *Real-time Planning as Data-driven Decision-making,* ICAPS workshop on Bridging the Gap Between AI Planning and Reinforcement Learning (PRL), 2020.

◇ Jason Carter, Marek Petrik, *Robust Risk-Averse Sequential Decision Making,* NeurIPS Safety and Robustness in Decision Making Workshop, 2019.

◇ Bahram Behzadian, Reazul Hasan Russel, Marek Petrik, *Optimizing Norm-bounded Weighted Ambiguity Sets for Robust MDPs,* NeurIPS Safety and Robustness in Decision Making Workshop, 2019.

◇ Reazul Hasan Russel, Tianyi Gu, Marek Petrik, *Robust Exploration with Tight Bayesian Plausibility Sets,* The Multi-disciplinary Conference on Reinforcement Learning and Decision Making, 2019

◇ Talha Siddique, Jia Lin Hau, Shadi Atallah, Marek Petrik, *Robust Pest Management Using Reinforcement Learning,* The Multi-disciplinary Conference on Reinforcement Learning and Decision Making, 2019

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◇ Reazul Hasan Russel, Marek Petrik, *Tight Bayesian Ambiguity Sets for Robust MDPs*, Infer2Control NIPS Workshop, 2018.

◇ Bahram Behzadian, Marek Petrik, *Feature Selection by Singular Value Decomposition for Reinforcement Learning,* Prediction and Generative Modeling in Reinforcement Learning Workshop, IJCAI/ICML 2018.

◇ Andrea Tirinzoni, Xiangli Chen, Marek Petrik and Brian Ziebart, *Policy-Conditioned Uncertainty Sets for Robust Markov Decision Processes*, Planning and Learning Workshop, IJCAI/ICML 2018.

◇ Andreas Lydakis, Jenica Allen, Marek Petrik, Tim Szewczyk, *Computing Robust Strategies for Managing Invasive Plants*, AI for Wildlife Conservation Workshop at IJCAI/ICML, 2018.

◇ Talha Siddique, Shadi S. Atallah, Marek Petrik, *Farm spatial configurations for increased pest resistance,* Northeastern Agricultural and Resource Economics Association, 2018.

◇ Talha Siddique, Shadi S. Atallah, Marek Petrik, *Optimal farm spatial configurations for increased pest resistance: a bio-economic application to apple orchards*, Southern Economic Alliance meeting, 2018.

◇ Bahram Behzadian, Marek Petrik, *Low-rank Feature Selection for Reinforcement Learning*, International Symposium on Artificial Intelligence and Mathematics, 2018.

◇ Amit Dhurandhar, Sechan Oh, Marek Petrik, *Building an Interpretable Recommender via Loss-Preserving Transformation*, ICML Workshop on Human Interpretability in Machine Learning (WHI 2016), 2016.

◇ Marek Petrik, Yinlam Chow, Mohammad Ghavamzadeh, *Safe Policy Improvement by Minimizing Robust Baseline Regret*, ICML Workshop on Reliable Machine Learning in the Wild, 2016.

◇ Marek Petrik, Dharmashankar Subramanian, *RAAM: The Benefits of Robustness in Approximating Aggregated MDPs in Reinforcement Learning*, From Bad Models to Good Policies (Sequential Decision Making under Uncertainty), NIPS Workshop, 2014.

◇ Marek Petrik, *Distributionally Robust Approach to Approximate Dynamic Programming*, European Workshop on Reinforcement Learning, 2012.

◇ Brenda Dietrich, Markus Ettl, Roger D. Lederman, Marek Petrik, *Optimizing the end-to-end value chain through demand shaping and advanced customer analytics*, 11th International Symposium on Process Systems Engineering, 2012.

◇ Marek Petrik, *Robust Approximate Optimization for Large Scale Planning Problems*. AAAI Doctoral Consortium, Pasadena, CA, 2009.

◇ Marek Petrik and Shlomo Zilberstein, *A Successive approximation algorithm for coordination problems*. In Proceedings of the International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, FL, 2008

◇ Marek Petrik and Shlomo Zilberstein, *Learning static parallel portfolios of algorithms*. In Proceedings of the International Symposium on Artificial Intelligence and Mathematics, Fort Lauderdale, FL, 2006.

◇ Marek Petrik, *Statistically optimal combination of algorithms*. In Local Proceedings of the International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM), 2005.

BOOK CHAPTERS	◇ Marek Petrik and Shlomo Zilberstein, *Learning Feature-Based Heuristic Functions*. In Y. Hamadi, E. Monfroy, and F. Saubion (Eds.), Autonomous Search, Springer, June, 2011.

INVITED TALKS & PRESENTATIONS

◇ *On the Convex Formulations of Robust Markov Decision Processes*, University of Montreal, November, 2023.

◇ *On the Convex Formulations of Robust Markov Decision Processes*, INFORMS, October, 2023.

◇ *Risk-averse and Robust Reinforcement Learning*, Deep Learning and Reinforcement Learning Summer School, Montreal, Quebec, Canada, July 2023.

◇ *Optimizing Entropic Risk in MDPs*, SIAM conference on optimization, Seattle, WA, June, 2023.

◇ Marek Petrik, *Bayesian Soft-Robust Reinforcement Learning*, Brown University, April, 2021.

◇ Marek Petrik, *Robust Reinforcement Learning*, University of Massachusetts, Lowell, September, 2019.

◇ Marek Petrik, *Fast Solution Methods for Robust Markov Decision Processes*, Sixth International Conference on Continuous Optimization, 2019.

◇ Marek Petrik, *Robust Reinforcement Learning*, Deep Learning and Reinforcement Learning Summer School, 2019.

◇ Marek Petrik, *Robust Reinforcement Learning without Simulation*, Microsoft Research, Montreal, 2019.

◇ Marek Petrik, *Robust Reinforcement Learning without Simulation*, Google Brain and Deepmind, Montreal, 2019.

◇ Marek Petrik, *Using Prior Knowledge in Reinforcement Learning*, Imperial College, 2018.

◇ Marek Petrik, *Reinforcement Learning for Managing Invasive Species*, UNH Data Science Seminar, 2018.

◇ Marek Petrik, *Robust Reinforcement Learning*, Oracle Research, 2017.

◇ Marek Petrik, *Robust Reinforcement Learning*, Lehigh University, 2017.

◇ Marek Petrik, Mohammad Ghavamzadeh, Yinlam Chow, *Computing Safe Policies with Inaccurate Models*, SIAM Conference on Optimization, 2017.

◇ Marek Petrik, Mohammad Ghavamzadeh, Yinlam Chow, *Computing Safe Policies with Inaccurate Models*, Data Learning and Inference (DALI), 2016.

◇ Marek Petrik, Ronny Luss, Rajesh Ravi, Markus Ettl, *Strategic Interpretable Online Recommendations*, NIPS eCommerce workshop 2015.

◇ Marek Petrik, *Threshold Policies for Energy Arbitrage*, INFORMS Annual Meeting, 2015.

◇ Marek Petrik, *Robust Approximate Dynamic Programming*, INFORMS Annual Meeting, 2015.

◇ Marek Petrik, *Benefits of Robust Optimization*, University of Massachusetts, Amherst, 2015.

◇ Stephen Becker, Marek Petrik, Ban Kawas, Karthikeyan N. Ramamurthy, *Robust Compressed Least Squares Regression*, Out of the Box: Robustness in High Dimension, NIPS Workshop, 2014.

- ◇ Marek Petrik, Dharmashankar Subramanian, *Using Robustness in Approximate Dynamic Programming,* INFORMS Annual Meeting, 2014.
- ◇ Marek Petrik, *Using Robust Optimization for Solving Large Data-driven Problems,* CS Colloquium, University of Colorado, Boulder, 2014.
- ◇ Marek Petrik, *Using Robustness in Value Function Approximation,* Modeling and Optimization: Theory and Applications (MOPTA), 2014
- ◇ Marek Petrik, *Distributionally Robust Approach to Approximate Dynamic Programming,* OR & OM Seminar, Tepper School of Business, Carnegie Mellon University, 2012
- ◇ Marek Petrik, Dharmashankar Subramanian, *Feature Selection in Linear Dynamical Systems,* INFORMS Annual Meeting, 2012
- ◇ Marek Petrik, *Distributionally Robust Approach to Approximate Dynamic Programming,* INFORMS Annual Meeting, 2011
- ◇ Marek Petrik, Dharmashankar Subramanian, *Risk Sensitive Resource Management in Dynamic Settings,* INFORMS Annual Meeting, 2011
- ◇ Dan Iancu, Marek Petrik, Dharmashankar Subramanian, Pu Huang, *The Price of Dynamic Inconsistency for Distortion Risk Measures,* INFORMS Annual Meeting 2011
- ◇ Marek Petrik, *Optimization-based Methods for Approximate Dynamic Programming,* INFORMS Annual Meeting, 2010.
- ◇ Marek Petrik, *Approximate Dynamic Programming for Resource Management,* IBM T.J. Watson Research Center, 2010
- ◇ Marek Petrik, *Approximate Dynamic Programming for Resource Management,* Robotics Institute, Carnegie-Mellon University, 2010
- ◇ Marek Petrik and Shlomo Zilberstein, *Value Function Approximation for Reservoir Management,* 2nd International Conference on Computational Sustainability, 2010
- ◇ Marek Petrik and Shlomo Zilberstein, *Blood Inventory Management Using Approximate Linear Programming Marek Petrik and Shlomo Zilberstein.* Presented at INFORMS Computing Society Meeting, Charleston, SC, 2009
- ◇ Marek Petrik and Shlomo Zilberstein, *Constraint Relaxation in Approximate Linear Programs.* Dagstuhl Seminar 09181: "Sampling-based Optimization", Dagstuhl, Germany, 2009
- ◇ Marek Petrik, *Aggregation in MDPs: Policy iteration and linear programming.* Presented at New England Student Colloquium on Artificial Intelligence, 2007.
- ◇ Marek Petrik, Shlomo Zilberstein, *Coordination in multi-agent systems.* Presented at MAIA research group in INRIA 2007.
- ◇ Marek Petrik *Basis construction using Krylov method.* Presented at TAM 2006, Bratislava, Slovakia.
- ◇ Marek Petrik, *Knowledge representation for expert systems.* Presented at International Conference for Undergraduate and Graduate Students of Applied Mathematics 2004.

FUNDING

- ◇ NSF RI 1815275: *Robust Reinforcement Learning Using Bayesian Models*, 2018–2022, $437,753. (PI, co-PI: Shadi Attalah)
- ◇ NSF III 1717368: *Robust Reinforcement Learning for Invasive Species Management*, 2017–2021, $497,335. (PI, co-PI: Jenica Allen)
- ◇ IBM Faculty Award 2017, $30,000
- ◇ RII Track-2 FEC: Leveraging Intelligent Informatics and Smart Data for Improved Understanding of Northern Forest Ecosystem Resiliency (INSPIRES), $5,099,999. (Senior Personnel for UNH, UMaine led)
- ◇ Served on NSF CISE panels, 2017, 2017, 2018, 2019, 2021, 2022

AWARDS

- ◇ UNH CEPS Outstanding Research Award (Assistant Professor), 2022
- ◇ NSF CAREER Award, 2022
- ◇ IBM Faculty Award, 2017
- ◇ (Co-author) Best Student Paper Award, UAI 2015
- ◇ IBM Research Division Award, "DataCenter Risk Resiliency Rationalization Analysis", 2013
- ◇ IBM First Patent Application Invention Achievement Award, "Robust Inventory Management in Multi-Stage Inventory Networks with Demand Shocks", 2012
- ◇ Awarded Graduate School Fellowship, University of Massachusetts Amherst, 2008-2009
- ◇ Passed portfolio (Ph.D. candidacy exam) with distinction, University of Massachusetts Amherst 2008
- ◇ Received: "Outstanding Synthesis Project" award for "A linear programming approach to bounds and basis construction for Markov decision processes", 2007-2008
- ◇ 2nd Place in Tetris Domain in Reinforcement Learning Competition 2008 (with Jeff Johns and Colin Barringer)

PROFESSIONAL SERVICE

- ◇ **Editor**
  - · Journal of Artificial Intelligence Research: 2022–2023
  - · Guest Editor: Machine Learning Special Issue on Risk and Fairness, 2021, 2022
- ◇ **Workshop Organization**
  - · NeurIPS 2021 Workshop: Safe and Robust Control of Uncertain Systems
  - · NeurIPS 2019 Workshop: Safety and Robustness in Decision-making
- ◇ **Journal Reviewing**
  - · Management Science 2019–2022
  - · Journal of Machine Learning Research 2010–2016, 2019–2024
  - · Journal of Artificial Intelligence Research 2008–2023 (Editorial board)
  - · Operations Research 2013–2021, 2022–2024
  - · SIAM Journal on Optimization 2016, 2017, 2023

- Annals of Operations Research, 2022–2024
- Annals of Statistics, 2021–2022
- Machine Learning 2016, 2017
- Operations Research Letters, 2020, 2022
- Mathematics of Operations Research 2012–2021
- Transactions on Pattern Analysis and Machine Intelligence, 2021
- Artificial Intelligence 2017, 2022, 2023
- European Journal of Operations Research 2017
- Computational Optimization and Applications 2017
- AdHoc Networks Journal 2015
- A Quarterly Journal of Operations Research 2015
- Information Processing Letters 2011
- International Journal of Approximate Reasoning 2011
- Journal of Autonomous Agents and Multi-Agent Systems 2007–2010
- IEEE Transactions on Automatic Control 2009–2010, 2016–2017
- Annals of Mathematics and Artificial Intelligence 2006, 2010
- Applied Stochastic Models in Business and Industry 2015

◇ **Conference Area Chair**
- Artificial Intelligence and Statistics (AIStats) 2023-2024
- International Conference on Machine Learning (ICML) 2023-2024
- Reinforcement learning conference (RLC), 2024

◇ **Conference Senior Program Committee**
- International Joint Conference on Artificial Intelligence (IJCAI) 2018–2023
- Conference on Artificial Intelligence (AAAI) 2019–2024

◇ **Conference Program Committee**
- International Conference on Machine Learning (ICML) 2011–2015, 2017–2022
- Advances in Neural Information Processing Systems (NIPS) 2011–2018
- Artificial Intelligence and Statistics (AI-STATS) 2011–2012, 2016–2022
- Conference on Artificial Intelligence (AAAI) 2008, 2012–2018
- European Workshop on Reinforcement Learning (EWRL), 2023
- International Conference on Automated Planning and Scheduling (ICAPS) 2017, 2018, 2019
- Uncertainty in Artificial Intelligence (UAI) 2010, 2013–2016
- Conference on Knowledge Discovery and Data Mining (KDD) 2016
- International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2016
- International Symposium on Artificial Intelligence and Mathematics 2011

- International Joint Conference on Artificial Intelligence (IJCAI) 2009, 2011, 2013, 2016, 2018
- Autonomous Agents and Multiagent Systems (AAMAS) 2010, 2016, 2017, 2020, 2021

◇ **Local co-chair of ICML 2016**

◇ **Conference Reviewing**
- Neural Information Processing Systems (NIPS) 2018
- North–East Student Colloquium on Artificial Intelligence (NESCAI) 2010
- International Conference on Automated Planning and Scheduling (ICAPS) 2007–2009
- National Conference on Artificial Intelligence (AAAI) 2006
- International Symposium on Artificial Intelligence and Mathematics 2006

◇ **Panels**
- NSF CISE 2017, 2017, 2018, 2019, 2021, 2022
- UNH Core 2018, 2019

◇ **Other Reviewing**
- Judge for SIAM Moody's Mega Math Challenge 2014, 2015

GRADUATED ADVISEES

◇ Ph.D. students: Reazul Russel, Bahram Behzadian

◇ M.Sc. students: Adreas Lydakis, Shayan Amani, Soheil Garattappeh, Talha Siddique, Shannon Stag

◇ B.Sc. theses: Samantha Piatt, Collin Small, Brandan Crowe, Gerard Donahue, Harrison Geisler, Francesco Mikulis-Borsoi

PROGRAMMING ◇ Julia, LaTeX, Lean 4, C/C++, R, Python, SQL, Stan

OTHER ◇ Cycling, mountaineering, swimming, running, and other outdoor pursuits