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Research Interests

My research is in machine learning, artificial intelligence, optimization, reinforcement learning, data mining, robotics, sensing, and sensor networks. My efforts are focused on the use of these methods across science, government, and commercial applications.

Education

Ph.D. (Computer Science), **University of Rochester**, December 1994.
Thesis title: "Intelligent Experimentation for Robot Skill Learning"
Thesis advisor: Christopher M. Brown.

M.S. (Computer Science, EE minor), **Michigan State University**, June 1990.

B.S. (Computer Science, EE minor), **Michigan State University**, June 1988.

Employment

7/24-present Board of Directors, **Inverted AI**, Vancouver, BC

7/13-present Research Professor, **Carnegie Mellon, Robotics Institute**, Pittsburgh, PA

2/15-9/18 Sr. Engineering Manager, **Uber Advanced Technologies Group**, Pittsburgh, PA

ATG develops Uber's self-driving cars. Built and led teams developing machine learning and data science based approaches to autonomy onboard and offboard the vehicles.

7/04-6/13 Associate Research Professor, **Carnegie Mellon, Robotics Institute**, Pittsburgh, PA

8/04-7/06 Chief Informatics Officer, **Psychogenics, Inc.**, Tarrytown, NY

PGI focuses on in vivo CNS drug discovery. Assembled the informatics group and led the development of new machine learning based drug discovery methods.

7/98-7/04 Research Scientist, **Carnegie Mellon, Robotics Institute**, Pittsburgh, PA

8/95-4/04 Co-founder, CEO, **Schenley Park Research, Inc.**, Pittsburgh, PA

SPR's mission is to bring machine learning technology to the commercial world by integrating it into software that is usable by non-experts. Activities include development of a general machine learning software product, development of a factory production scheduling system used by a major US food manufacturer, consulting for large and small clients, management of company finances, and employees. SPR had over two dozen clients in six countries including four Fortune 500 companies.

1/95-6/98 Post-Doc, **Carnegie Mellon, Robotics Institute**, Pittsburgh, PA
Supervisor: Andrew W. Moore

1/91-12/94 Research Assistant, **U. of Rochester Comp. Sci. Dept.**, Rochester, NY
Supervisor: Christopher M. Brown

5/93-7/93 Visiting Graduate Student, **MIT AI Lab**, Cambridge, MA
Supervisor: Christopher G. Atkeson

6/91-9/91, 6/90-9/90, 6/89-9/89 Research Assistant, **General Motors Research Labs**, Warren, MI
Supervisors: Yong Lee, Paul Besl

6/88-9/88, 6/87-9/87, Research Assistant, **Texas Instruments AI Lab**, Plano, TX
Supervisors: Tom Barrett, Pam Fales

Publications

Book Chapters

D. Brunner, V. Alexandrov, B. Caldarone, T. Hanania, D. Lowe, J. Schneider, J. Chandrasekhar, "Behavior-Based Screening as an Approach to Polypharmacological Ligands",*Polypharmacology in Drug Discovery*, pp 301-309, Wiley, 2012.

D. Neill, G. Cooper, K. Das, X. Jiang, J. Schneider, "Bayesian Network Scan Statistics for Multivariate Pattern Detection", *in J. Glaz, V. Pozdnyakov, S. Wallenstein, editors, "Scan Statistics – Methods and Applications"*, Birkhauser, 2008.

M. Riedmiller, A. Moore, J. Schneider, "Reinforcement Learning for Cooperating and Communicating Reactive Agents in Electrical Power Grids", *in M. Hannebauer, J. Wendler, E. Pagello, editors, "Balancing Reactivity and Social Deliberation in Multi-Agent Systems, Lecture Notes in Artificial Intelligence"*, Springer, 2002.

Journals

V Mehta, J Barr, J Abbate, M Boyer, I Char, W Neiswanger, E Kolemen, J Schneider, "Automated experimental design of safe rampdowns via probabilistic machine learning", Nuclear Fusion, 64, 4, 2024.

Max E Fenstermacher et al, "DIII-D research advancing the physics basis for optimizing the tokamak approach to fusion energy", *Nuclear Fusion*, 2022.

Alan A Kaptanoglu, Azarakhsh Jalalvand, Alvin V Garcia, Max E Austin, Geert Verdoolaege, Jeff Schneider, Christopher J Hansen, Steven L Brunton, William W Heidbrink, Egemen Kolemen, "Exploring data-driven models for spatiotemporally local classification of Alfvn eigenmodes", *Nuclear Fusion*, 2022.

Conor Igoe, Ramina Ghods, Jeff Schneider, "Multi-Agent Active Search: A Reinforcement Learning Approach", *IEEE Robotics and Automation Letters*, 2021.

Kevin Tran, Willie Neiswanger, Kirby Broderick, Eric Xing, Jeff Schneider, Zachary W Ulissi, "Computational catalyst discovery: Active classification through myopic multiscale sampling", *Chemical Physics*, 2021.

K. Kandasamy, KR Vysyaraju, W. Neiswanger, B. Paria, C. Collins, J. Schneider, B. Poczos, E. Xing, "Tuning Hyperparameters without Grad Students: Scalable and Robust Bayesian Optimisation with Dragonfly", *Journal of Machine Learning Research*, 21 (81), 1-27, 2020.

T. Gervet, K. Koedinger, J. Schneider, T. Mitchell, "When is Deep Learning the Best Approach to Knowledge Tracing?", *Journal of Educational Data Mining*, 12 (3), 31-54, 2020.

K. Kandasamy, G. Dasarathy, J. Oliva, J. Schneider, B. Poczos, "Multi-fidelity Gaussian Process Bandit Optimisation", *Journal of Artificial Intelligence Research (JAIR)*, 66, 151-196, 2019.

G. Cabrera-Vives, C. Miller, J. Schneider, "Systematic Labeling Bias in Galaxy Morphologies", *The Astronomical Journal*, 156 (6), 2018.

R. Garnett, S. Ho, S. Bird, J. Schneider, "Detecting damped Ly alpha absorbers with Gaussian processes", *Monthly Notices of the Royal Astronomical Society (MNRAS)*, 472 (2), 1850-1865, 2017.

K. Kandasamy, J. Schneider, B. Poczos, "Query Efficient Posterior Estimation in Scientific Experiments via Bayesian Active Learning", *Artificial Intelligence Journal (AIJ)*, 2017.

M Ntampaka, H Trac, DJ Sutherland, S Fromenteau, B Pczos, J. Schneider, "Dynamical mass measurements of contaminated galaxy clusters using machine learning", *The Astrophysical Journal*, 831 (2), 135, 2016.

M. Ntampaka, H. Trac, D. Sutherland, N. Battaglia, B. Pczos, J. Schneider, "A machine learning approach for dynamical mass measurements of galaxy clusters", *The Astrophysical Journal*, 803 (2), 50, 2015.

X. Xu, S. Ho, H. Trac, J. Schneider, B. Poczos, M. Ntampaka, "A First Look at Creating Mock Catalogs with Machine Learning Techniques", *Astrophysical Journal*, 2013.

S. Daniel, A. Connolly, J. Schneider, J. VanderPlas, L. Xiong, "Classification of Stellar Spectra with Local Linear Embedding", *Astronomical Journal*, 142:203, 2011.

R. Houghten, C. Pinilla, M Giulianotti, J. Appel, C. Dooley, A. Nefzi, J. Ostresh, Y. Yu, G. Maggiora, J. Medina-Franco, D. Brunner, J. Schneider, "Strategies for the Use of Mixture-Based Synthetic Combinatorial Libraries: Scaffold Ranking, Direct Testing In Vivo, and Enhanced Deconvolution by Computational Methods", *Journal of Combinatorial Chemistry*, 10 (1), 3-19, 2008.

B. Bryan, J. Schneider, C. Miller, R. Nichol, C. Genovese, L. Wasserman, "Mapping the Cosmological Confidence Ball Surface", *Astrophysical Journal*, 2007.

S. Baker, I. Matthews, J. Schneider, "Automatic Construction of Active Appearance Models as an Image Coding Problem", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, v. 26, no. 10, 2004.

C. Miller, C. Genovese, R. Nichol, L. Wasserman, A. Connolly, D. Reichart, A. Hopkins, J. Schneider, A. Moore,"Controlling the False Discovery Rate in Astrophysical Data Analysis", *Astronomical Journal*, 122, 6, 3492-3505, 2001.

Refereed Publications

A Rothstein, H Farre, R Sonker, S Kim, A Jalalvand, J Schneider, E Kolemen, "Preemptive tearing mode suppression using real-time ECH steering machine learning stability predictions on DIII-D", *Bulletin of the American Physical Society*, 2024.

B Yang, H Su, N Gkanatsios, T-W Ke, A Jain, J Schneider, K Fragkiadaki, "Diffusion-ES: Gradient-free Planning with Diffusion for Autonomous and Instruction-guided Driving", IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024

B Freed, T Wei, R Calandra, J Schneider, H Choset, "Unifying Model-Based and Model-Free Reinforcement Learning with Equivalent Policy Sets", Reinforcement Learning Conference, 2024.

A Kapoor, B Freed, H Choset, J Schneider, "Assigning Credit with Partial Reward Decoupling in Multi-Agent Proximal Policy Optimization", Reinforcement Learning Conference, 2024.

Y Chung, I Char, J Schneider, "Sampling-based Multi-dimensional Recalibration", *International Conference on Machine Learning (ICML)*, 2024.

Y Song, J Schneider, "Genetic Algorithm for Curriculum Design in Multi-Agent Reinforcement Learning", Conference on Robot Learning (CoRL), 2024.

A Banerjee, J Schneider, "Decentralized Multi-Agent Active Search and Tracking when Targets Outnumber Agents", *IEEE International Conference on Robotics and Automation (ICRA)*, 2024.

Albert Xu, Bhaskar Vundurthy, Geordan Gutow, Ian Abraham, Jeff Schneider and Howie Choset, "Measure Preserving Flows for Ergodic Search in Convoluted Environments", Distributed Autonomous Robotic Systems (DARS), 2024.

F Tajwar, A Singh, A Sharma, R Rafailov, J Schneider, T Xie, S Ermon, C Finn, A Kumar, "Preference Fine-Tuning of LLMs Should Leverage Suboptimal, On-Policy Data", International Conference on Machine Learning (ICML), 2024.

J Schneider, I Char, V Mehta, Y Chung, "Reinforcement Learning for Plasma Control in Tokamaks", *IAEA Fusion Energy Conference (FEC)*, 2023.

R Saxena, Y Chung, I Char, J Abbate, J Schneider, "Disruption Prediction via Deep Recurrent Neural Networks", *Bulletin of the American Physical Society*, 2023.

V Mehta, J Barr, J Abbate, I Char, W Neiswanger, M Boyer, E Kolemen, J Schneider, "Automated Experimental Design of Safe Rampdowns via Probabilistic Machine Learning", *Bulletin of the American Physical Society*, 2023.

N Angad Bakshi, J Schneider, "Stealthy Terrain-Aware Multi-Agent Active Search", *Conference on Robot Learning (CoRL)*, 2023.

I Char, J Schneider, "PID-Inspired Inductive Biases for Deep Reinforcement Learning in Partially Observable Control Tasks", *Neural Information Processing Systems (NeurIPS)*, 2023.

B Freed, S Venkatraman, GA Sartoretti, J Schneider, H Choset, "Learning temporally Abstract World models without online experimentation", *International Conference on Machine Learning (ICML)*, 2023.

I Char, J Abbate, L Bardczi, M Boyer, Y Chung, R Conlin, K Erickson, V Mehta, N Richner, E Kolemen, J Schneider, "Offline Model-Based Reinforcement Learning for Tokamak Control", *Learning for Dynamics and Control Conference (L4DC)*, 2023.

C Igoe, S Pande, S Venkatraman, J Schneider, "Multi-Alpha Soft Actor-Critic: Overcoming Stochastic Biases in Maximum Entropy Reinforcement Learning", *IEEE International Conference on Robotics and Automation (ICRA)*, 2023.

A Banerjee, R Ghods, J Schneider, "Multi-agent active search using detection and location uncertainty", *IEEE International Conference on Robotics and Automation (ICRA)*, 2023.

NA Bakshi, T Gupta, R Ghods, J Schneider, "GUTS: Generalized Uncertainty-Aware Thompson Sampling for Multi-Agent Active Search", *International Conference on Robotics and Automation (ICRA)*, 2023.

A Banerjee, R Ghods, J Schneider, "Cost-Awareness in Multi-Agent Active Search", *European Conference on AI (ECAI)*, 2023.

I Char, J Abbate, V Mehta, Y Chung, R Conlin, K Erickson, M Boyer, Nathan Richner, Laszlo Bardoczi, Nikolas Logan, Jayson Barr, Egemen Kolemen, Jeff Schneider, "Differential Rotation Control for the DIII-D Tokamak via Model-Based Reinforcement Learning", Bulletin of the American Physical Society, 2022.

Y Song, J Schneider, "Robust Reinforcement Learning via Genetic Curriculum", *International Conference on Robotics and Automation (ICRA)*, 2022.

Viraj Mehta, Ian Char, Joseph Abbate, Rory Conlin, Mark D Boyer, Stefano Ermon, Jeff Schneider, Willie Neiswanger, "Exploration via Planning for Information about the Optimal Trajectory", *Neural Information Processing Systems (NeurIPS)*, 2022.

Adam R Villaflor, Zhe Huang, Swapnil Pande, John M Dolan, Jeff Schneider, "Addressing optimism bias in sequence modeling for reinforcement learning", *International Conference on Machine Learning (ICML)*, 2022.

Divam Gupta, Wei Pu, Trenton Tabor, Jeff Schneider, "SBEVNet: End-to-End Deep Stereo Layout Estimation", *IEEE/CVF Winter Conference on Applications of Computer Vision*, 2022.

Youngseog Chung, Willie Neiswanger, Ian Char, Jeff Schneider, "Beyond pinball loss: Quantile methods for calibrated uncertainty quantification", *Neural Information Processing Systems (NeurIPS)*, 2021.

Viraj Mehta, Ian Char, Willie Neiswanger, Youngseog Chung, Andrew Nelson, Mark Boyer, Egemen Kolemen, Jeff Schneider, "Neural dynamical systems: Balancing structure and flexibility in physical prediction", *IEEE Conference on Decision and Control (CDC)*, 2021.

Benjamin Freed, Aditya Kapoor, Ian Abraham, Jeff Schneider, Howie Choset, "Learning Cooperative Multi-Agent Policies With Partial Reward Decoupling", *International Conference on Robotics and Automation (ICRA)*, 2021.

Zhiqian Qiao, Jeff Schneider, John M Dolan, "Behavior Planning at Urban Intersections through Hierarchical Reinforcement Learning", *IEEE International Intelligent Transportation Systems Conference (ITSC)*, 2021.

Ramina Ghods, William J Durkin, Jeff Schneider, "Multi-agent active search using realistic depth-aware noise model", *IEEE International Intelligent Transportation Systems Conference (ITSC)*, 2021.

Tanmay Agarwal, Hitesh Arora, Jeff Schneider, "Learning Urban Driving Policies using Deep Reinforcement Learning", *IEEE International Intelligent Transportation Systems Conference (ITSC)*, 2021.

Ramina Ghods, Arundhati Banerjee, Jeff Schneider, "Decentralized multi-agent active search for sparse signals", *Uncertainty in Artificial Intelligence (UAI)*, 2021.

H. Cui, T. Nguyen, FC Chou, TH Lin, J. Schneider, D. Bradley, N. Djuric, "Deep Kinematic Models for Kinematically Feasible Vehicle Trajectory Predictions", *International Conference on Robotics and Automation (ICRA)*, 2020.

K. Korovina, S. Xu, K. Kandasamy, W. Neiswanger, B. Poczos, J. Schneider, E. Xing, "ChemBO: Bayesian Optimization of Small Organic Molecules with Synthesizable Recommendations", *International Conference on AI and Statistics (AISTATS)*, 2020.

N. Djuric, V. Radosavljevic, H. Cui, T. Nguyen, FC Chou, TH Lin, N. Singh, J. Schneider, "Uncertainty-aware short-term motion prediction of traffic actors for autonomous driving", *IEEE Winter Conference on Applications of Computer Vision*, 2020.

I. Char, Y. Chung, W. Neiswanger, K. Kandasamy, O. Nelson, M. Boyer, E. Kolemen, J. Schneider, "Offline Contextual Bayesian Optimization", Neural Information Processing Systems (NeurIPS), 2019.

H. Cui, V. Radosavljevic, F.C. Chou, T.H. Lin, T.K. Huang, J. Schneider, N. Djuric, "Mulitmodal Trajectory Predictions for Autonomous Driving using Deep Convolutional Neural Networks", *International Conference on Robotics and Automation (ICRA)*, 2019.

K. Kandasamy, W. Neiswanger, R. Zhang, A. Krishnamurthy, J. Schneider, B. Poczos, "Myopic Posterior Sampling for Adaptive Goal Oriented Design of Experiments", *International Conference on Machine Learning (ICML)*, 2019.

K. Kandasamy, W. Neiswanger, J. Schneider, B. Poczos, E. Xing, "Neural Architecture Search with Bayesian Optimisation and Optimal Transport", *Advances in Neural Information Processing Systems (NIPS)*, 2018.

J. Oliva, A. Dubey, M. Zaheer, B.Pczos, R. Salakhutdinov, E. Xing, J. Schneider, "Transformation Autoregressive Networks", *International Conference on Machine Learning (ICML)*, 2018.

K. Kandasamy, A. Krishnamurthy, J. Schneider, B. Poczos, "Asynchronous parallel Bayesian optimisation via thompson sampling", *AISTATS*, 2018.

K. Kandasamy, G. Dasarathy, J. Schneider, B. Poczos, "Multi-fidelity Bayesian Optimisation with Continuous Approximations", *International Conference on Machine Learning (ICML)*, 2017

S. Ravanbaksh, J. Schneider, B. Poczos, "Equivariance Through Parameter-Sharing", *International Conference on Machine Learning (ICML)*, 2017.

J. Oliva, B. Poczos, J. Schneider,"The Statistical Recurrent Unit", *International Conference on Machine Learning (ICML)*, 2017.

S. Ravanbakhsh, F. Lanusse, R. Mandelbaum, J. Schneider, B. Poczos, "Enabling Dark Energy Science with Deep Generative Models of Galaxy Images", *AAAI*, 2017.

Y. Ma, R. Garnett, J. Schneider, "Active Search for Sparse Signals with Region Sensing", *AAAI*, 2017.

K. Kandasamy, G. Dasarathy, J. Oliva, J. Schneider, B. Poczos, "Gaussian Process Bandit Optimisation with Multi-fidelity Evaluations", *Advances in Neural Information Processing Systems (NIPS)*, 2016.

K. Kandasamy, G. Dasarathy, J. Schneider, B. Poczos, "The Multi-fidelity Multi-armed Bandit", *Advances in Neural Information Processing Systems (NIPS)*, 2016.

S. Ravanbakhsh, J. Oliva, S. Fromenteau, L. Price, S. Ho, J. Schneider, B. Pczos, "Estimating cosmological parameters from the dark matter distribution", *International Conference on Machine Learning (ICML)*, 2016.

J. Oliva, A. Dubey, A. Wilson, B. Poczos, J. Schneider, E. Xing, "Bayesian Nonparametric Kernel-Learning", *International Conference on AI and Statistics (AISTATS)*, 2016.

S. Ravanbakhsh, B. Poczos, J.Schneider, D. Schuurmans, R. Greiner, "Stochastic Neural Networks with Monotonic Activation Functions", *International Conference on Artificial Intelligence and Statistics(AISTATS)*, 2016.

C. Li, K. Kandasamy, B. Poczos, J. Schneider, "High Dimensional Bayesian Optimization via Restricted Projection Pursuit Models", *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2016.

X. Wang, J. Oliva, J. Schneider, B. Pczos, "Nonparametric risk and stability analysis for multi-task learning problems", *International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.

R. Garnett, S. Ho, J. Schneider, "Finding galaxies in the shadows of quasars with Gaussian processes", *International Conference on Machine Learning (ICML)*, 2015.

K. Kandasamy, J. Schneider, B. Poczos, "High Dimensional Bayesian Optimisation and Bandits via Additive Models", *International Conference on Machine Learning (ICML)*, 2015.

D. Sutherland, J. Oliva, B. Poczos, J. Schneider, "Linear-Time Learning on Distributions with Approximate Kernel Embeddings", *AAAI*, 2015.

J. Oliva, W. Neiswanger, B. Poczos, E. Xing, J. Schneider, "Fast Function to Function Regression", *International Conference on AI and Statistics (AISTATS)*, 2015.

B. Boecking, M. Hall, J. Schneider, "Event prediction with learning algorithms - A study of events surrounding the Egyptian revolution of 2011 on the basis of micro blog data", *Policy and Internet*, 7 (2), 159-184, 2015.

K. Kandasamy, J. Schneider, B. Poczos, "Bayesian Active Learning for Posterior Estimation", (best paper) *International Joint Conference on Artificial Intelligence (IJCAI)*, 2015.

X. Wang, J. Schneider, "Generalization Bounds for Transfer Learning under Model Shift", *Uncertainty in Artificial Intelligence (UAI)*, 2015.

Y. Ma, T. Huang, J. Schneider, "Active Search and Bandits on Graphs using Sigma-Optimality", *Uncertainty in Artificial Intelligence (UAI)*, 2015.

D. Sutherland and J. Schneider, "On the Error of Random Fourier Features", *Uncertainty in Artificial Intelligence (UAI)*, 2015.

Y. Ma, D. Sutherland, R. Garnett, J. Schneider, "Active pointillistic pattern search", *Artificial Intelligence and Statistics (AISTATS)*, 672-680, 2015.

X. Wang, J. Schneider, "Flexible Transfer Learning under Support and Model Shift", *Neural Information Processing Systems (NIPS)*, 2014.

X. Wang, T. Huang, J. Schneider, "Active Transfer Learning under Model Shift", *International Conference on Machine Learning (ICML)*, 2014.

Y. Ma, R. Garnett, J. Schneider, "Active Area Search via Bayesian Quadrature", *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2014.

J. Oliva, B. Poczos, T. Verstynen, A. Singh, J. Schneider, F. Yeh, W. Tseng, "FuSSO: Functional Shrinkage and Selection Operator", *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2014.

J. Oliva, W. Neiswanger, B. Poczos, J. Schneider, E. Xing, "Fast Distribution To Real Regression", *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2014.

T. Huang, J. Schneider, "Learning Hidden Markov Models from Non-sequence Data via Tensor Decomposition", *Neural Information Processing Systems (NIPS)*, 2013.

Y. Ma, R. Garnett, J. Schneider, "Σ-Optimality for Active Learning on Gaussian Random Fields", *Neural Information Processing Systems (NIPS)*, 2013.

T. Huang, J. Schneider, "Spectral Learning of Hidden Markov Models from Dynamic and Static Data", *International Conference on Machine Learning (ICML)*, 2013.

J. Oliva, B. Poczos, J. Schneider, "Distribution to Distribution Regression", *International Conference on Machine Learning (ICML)*, 2013.

M. Tesch, J. Schneider, H. Choset, "Expensive Function Optimization with Stochastic Binary Outcomes", *International Conference on Machine Learning (ICML)*, 2013.

X. Wang, R. Garnett, J. Schneider, "Active Search on Graphs", *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, 2013.

D. Sutherland, B. Poczos, J. Schneider, "Active Learning and Search on Low-Rank Matrices", *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, 2013.

L. Xiong, B. Poczos, J. Schneider, "Efficient Learning on Point Sets", *IEEE International Conference on Data Mining (ICDM)*, 2013.

B. Poczos, Z. Ghahramani, J. Schneider, "Copula-based Kernel Dependency Measures", *International Conference on Machine Learning (ICML)*, 2012.

R. Garnett, Y. Krishnamurthy, X. Xiong, J. Schneider, R. Mann, "Bayesian Optimal Active Search and Surveying", *International Conference on Machine Learning (ICML)*, 2012.

Y. Zhang, J. Schneider, "Maximum Margin Output Coding", *International Conference on Machine Learning (ICML)*, 2012.

B. Poczos, J. Schneider, "Nonparametric Estimation of Conditional Information and Divergences", *AISTATS*, 2012.

Y. Zhang, J. Schneider, "A Composite Likelihood View for Multi-Label Classification", *AISTATS*, 2012.

B. Poczos, L. Xiong, D. Sutherland, J. Schneider, "Nonparametric Kernel Estimators for Image Classification", *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012.

T. Huang, J. Schneider, "Learning Bi-clustered Vector Autoregressive Models", *European Conference on Machine Learning (ECML)*, 2012.

T. Huang, J. Schneider, "Learning Auto-regressive Models from Sequence and Non-sequence Data", *Neural Information Processing Systems (NIPS)*, 2011.

L. Xiong, B. Poczos, J. Schneider, "Group Anomaly Detection using Flexible Genre Models", *Neural Information Processing Systems (NIPS)*, 2011.

B. Poczos, L. Xiong, J. Schneider, "Nonparametric Divergence Estimation with Applications to Machine Learning on Distributions", *Uncertainty in Artificial Intelligence (UAI)*, 2011.

B. Poczos, J. Schneider, "On the Estimation of α-Divergences", *Artificial Intelligence and Statistics (AISTATS)*, 2011.

L. Xiong, B. Poczos, J. Schneider, A. Connolly, J. VanderPlas, "Hierarchical Probabilistic Models for Group Anomaly Detection", *Artificial Intelligence and Statistics (AISTATS)*, 2011.

Y. Zhang, J. Schneider, "Multi-Label Output Codes using Canonical Correlation Analysis", *Artificial Intelligence and Statistics (AISTATS)*, 2011.

M. Tesch, J. Schneider, H. Choset, "Adapting Control Policies for Expensive Systems to Changing Environments", *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, 2011.

M. Tesch, J. Schneider, H. Choset, "Using Response Surfaces and Expected Improvement to Optimize Snake Robot Gait Parameters", *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, 2011.

B. Poczos, Z. Szabo, J. Schneider, "Nonparametric Divergence Estimators for Independent Subspace Analysis", *European Signal Processing Conference (EUSIPCO)*, 2011.

L. Xiong, X. Chen, J. Schneider, "Direct Robust Matrix Factorization", *IEEE International Conference on Data Mining (ICDM)*, 2011.

Y. Zhang, J. Schneider, "Learning Multiple Tasks with a Sparse Matrix-Normal Penalty", *Neural Information Processing Systems (NIPS)*, 2010.

Y. Zhang, J. Schneider, "Projection Penalties: Dimension Reduction without Loss", *International Conference on Machine Learning (ICML)*, 2010.

T. Huang, J. Schneider, L. Song, "Learning Nonlinear Dynamic Models from Non-sequenced Data", *Proceedings of Artificial Intelligence and Statistics (AISTATS)*, 2010.

L. Xiong, X. Chen, T. Huang, J. Schneider, J. Carbonell, "Temporal Collaborative Filtering with Bayesian Probabilistic Tensor Factorization", *Proceedings of SIAM Data Mining (SDM)*, 2010.

Y. Zhang, J. Schneider, A. Dubrawski, "Learning Compressible Models", *Proceedings of SIAM Data Mining (SDM)*, 2010.

P. Donmez, J. Carbonell, J. Schneider, "A Probabilistic Framework to Learn from Multiple Annotators with Time-Varying Accuracy", *Proceedings of SIAM Data Mining (SDM)*, 2010.

T. Huang, J. Schneider, "Learning Linear Dynamical Systems without Sequence Information", *International Conference on Machine Learning (ICML)*, 2009.

P. Donmez, J. Carbonell, J. Schneider, "Efficiently Learning the Accuracy of Labeling Sources for Selective Sampling", *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2009.

Y. Zhang, J. Schneider, A. Dubrawski, "Learning the Semantic Correlation: An Alternative Way to Gain from Unlabeled Text", *Neural Information Processing Systems (NIPS)*, 2008.

K. Das, J. Schneider, D. Neill, "Anomaly Pattern Detection in Categorical Datasets", *14th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2008.

B. Bryan, J. Schneider, "Actively Learning Level-Sets of Composite Functions", *International Conference on Machine Learning (ICML)*, 2008.

B. Bryan, B. McMahan, C. Schafer, J. Schneider, "Efficiently Computing Minimax Expected-Size Confidence Regions", *International Conference on Machine Learning (ICML)*, 2007.

K. Das, J. Schneider, "Detecting Anomalous Records in Categorical Data Sets", *ACM International Conference on Knowledge Discovery and Data Mining (KDD)*, 2007.

J. Roure, A. Dubrawski, J. Schneider, "A Study into Detection of Bio-Events in Multiple Streams of Surveillance Data", *Intelligence and Security Informatics: Biosurveillance*, pp 124-133, 2007.

B. Bryan, L. Wasserman, J. Schneider, R. Nichol, C. Miller, C. Genovese, "Active Learning for Identifying Function Threshold Boundaries," *Neural Information Processing Systems (NIPS)*, 2005.

R. Emery-Montemerlo, G. Gordon, J. Schneider, S. Thrun, "Game Theoretic Control for Robot Teams" *International Conference on Robotics and Automation (ICRA)*, 2005.

J. Schneider, D. Apfelbaum, D. Bagnell, R. Simmons, "Learning Opportunity Costs in Multi-Robot Market Based Planners," *International Conference on Robotics and Automation (ICRA)*, 2005.

P. Hsiung, A. Moore, D. Neill, J. Schneider, "Alias Detection in Link Data Sets", *International Conference on Intelligence Analysis*, 2005.

K. Das, A. Moore, J. Schneider, "Belief state approaches to signaling alarms in surveillance systems", *ACM International Conference on Knowledge Discovery and Data Mining (KDD)*, 2004.

R. Emery-Montemerlo, G. Gordon, J. Schneider, S. Thrun, "Approximate Solutions for Partially Observable Stochastic Games with Common Payoffs", *Autonomous Agents and Multi-Agent Systems (AAMAS)*, 2004.

J. Bagnell, S. Kakade, A. Ng, J. Schneider, "Policy Search by Dynamic Programming", *Proceedings of Neural Information Processing Systems (NIPS)*, 2003.

J. Kubica, A. Moore, D. Cohn, J. Schneider, "Finding Underlying Connections: A Fast Method for Link Analysis and Collaboration Queries", *International Conference on Machine Learning (ICML)*, 2003.

J. Bagnell, J. Schneider, "Covariant Policy Search", *International Joint Conference on Artificial Intelligence*, 2003.

J. Kubica, A. Moore, J. Schneider, "Tractable Group Detection on Large Link Data Sets", *The Third IEEE International Conference on Data Mining*, 2003.

J. Schneider, A. Moore, "Active Learning in Discrete Input Spaces", *The 34th Interface Symposium*, Montreal, Quebec, Apr 17-20, 2002.

A. Moore, J. Schneider, "Real-valued All-Dimensions search: Low-overhead rapid searching over subsets of attributes", *Conference of Uncertainty in Artificial Intelligence (UAI)*, 2002.

J. Kubica, A. Moore, J. Schneider, Y. Yang, "Stochastic Link and Group Detection", *Eighteenth National Conference on Artificial Intelligence (AAAI)*, 2002.

Y. Liu, F. Dellaert, W.E. Rothfus, A. Moore, J. Schneider, T. Kanade, "Classification-Driven Pathological Neuroimage Retrieval Using Statistical Asymmetry Measures", *Proceedings of the International Conference of Medical Image Computing and Computer Assisted Intervention (MICCAI 2001)*, October 14-17, 2001.

J. A. Bagnell, J. Schneider, "Autonomous Helicopter Control using Reinforcement Learning Policy Search Methods", *International Conference on Robotics and Automation (ICRA)*, 2001.

J. G. Schneider, W. K. Wong, A. W. Moore, M. Riedmiller, "Distributed Value Functions", *International Conference on Machine Learning (ICML)*, 1999.

M. Chen, T. Kanade, D. Pomerleau, J. Schneider, "3-Deformable Registration of Medical Images Using a Statistical Atlas", *Second International Conference on Medical Image Computing and Computer-Assisted Intervention*, 1999.

J. Schneider, J. Boyan, and A. Moore, "Stochastic Production Scheduling to meet Demand Forecasts", *IEEE Conference on Decision and Control*, 1998.

J. G. Schneider, J. A. Boyan, A. W. Moore, "Value Function Based Production Scheduling," *International Conference on Machine Learning (ICML)*, 1998.

A. W. Moore, J. G. Schneider, J. A. Boyan, M. S. Lee, "Q2: Memory-based active learning for optimizing noisy continuous functions," *International Conference on Machine Learning (ICML)*, 1998.

A. W. Moore, J. G. Schneider, K. Deng,"Efficient Locally Weighted Polynomial Regression Predictions," *International Conference on Machine Learning (ICML)*, 1997.

J. G. Schneider,"Exploiting Model Uncertainty Estimates for Safe Dynamic Control Learning," *Neural Information Processing Systems (NIPS)*, 1996.

A. W. Moore, J. G. Schneider, "Memory-based Stochastic Optimization," *Neural Information Processing Systems (NIPS)*, 1995.

J. G. Schneider, C. M. Brown, "Cooperative Coaching in Robot Skill Learning," *Int. Conference on Intelligent Robots and Systems*, 1995.

J. G. Schneider, R. F. Gans, "Efficient Search for Robot Skill Learning: Simulation and Reality," *IEEE Int. Conference on Intelligent Robots and Systems*, 1994.

J. G. Schneider, C. M. Brown, "Task Level Training Signals for Learning Controllers," *IEEE International Symposium on Intelligent Control*, 1994.

J. G. Schneider, "High Dimension Action Spaces in Robot Skill Learning," *Twelfth National Conference on Artificial Intelligence (AAAI-94)*, 1994.

J. G. Schneider, C. M. Brown, "Cooperation and Coaching for Motor Skill Learning," *Int. Dedicated Conference on Robotics, Motion and Machine Vision*, 1994.

J. G. Schneider, C. M. Brown, "Robot Skill Learning, Basis Functions, and Control Regimes," *Proceedings: IEEE Int. Conference on Robotics and Automation (ICRA)*, 1993.

Other Publications and Posters

V Mehta, J Abbate, A Wang, A Rothstein, I Char, J Schneider, E Kolemen, "Towards LLMs as Operational Copilots for Fusion Reactors", *NeurIPS AI for Science Workshop*, 2023.

Char, Abbate, Bardoczi, Boyer, Chung, Conlin, Erickson, Mehta, Richner, Kolemen, Schneider, "Offline Model-Based Reinforcement Learning for Tokamak Control", *NeurIPS Workshop on Machine Learning and the Physical Sciences*, 2022.

Ian Char, Joe Abbate, Viraj Mehta, Youngseog Chung, Rory Conlin, Keith Erickson, Mark Boyer, Nathan Richner, Laszlo Bardoczi, Nikolas Logan, Jayson Barr, Egemen Kolemen, Jeff Schneider, "Differential Rotation Control for the DIII-D Tokamak via Model-Based Reinforcement Learning", *Bulletin of the American Physical Society*, 2022.

Viraj Mehta, Joseph Abbate, Rory Conlin, Egemen Kolemen, Jeff Schneider, "Controlling Plasma Profiles in a Learned Model via Reinforcement Learning", *APS Division of Plasma Physics Meeting Abstracts*, 2021.

Egemen Kolemen, Mark Boyer, Ryan Coffee, Jeff Schneider, David Smith, Azarakhsh Jalalvand, Rory Conlin, Joseph Abbate, "Machine Learning for Real-time Fusion Plasma Behavior Prediction and Manipulation", *APS Division of Plasma Physics Meeting Abstracts*, 2021.

Ian Char, Youngseog Chung, Mark Boyer, Egemen Kolemen, Jeff Schneider, "A Model-Based Reinforcement Learning Approach for Beta Control", *APS Division of Plasma Physics Meeting Abstracts*, 2021.

Mark Boyer, Josiah Wai, Mitchell Clement, Egemen Kolemen, Ian Char, Youngseog Chung, Willie Neiswanger, Jeff Schneider, "Machine learning for tokamak scenario optimization: combining accelerating physics models and empirical models", *APS Division of Plasma Physics Meeting Abstracts*, 2021.

Youngseog Chung, Ian Char, Han Guo, Jeff Schneider, Willie Neiswanger, "Uncertainty toolbox: an open-source library for assessing, visualizing, and improving uncertainty quantification", *arXiv:2109.10254*, 2021.

V. Mehta, I. Char, W. Neiswanger, Y. Chung, AO Nelson, MD Boyer, E. Kolemen, J. Schneider, "Neural Dynamical Systems", *ICLR Workshop on Integration of Deep Neural Models and Differential Equations*, 2020.

J. Oliva, B. Poczos, A. Singh, J. Schneider, T. Verstynen, "Sparse Functional Regression", *NIPS workshop on Modern Nonparametric Methods in Machine Learning*, 2013.

X. Wang, R. Garnett, J. Schneider, "An Impact Criterion for Active Graph Searc h", *NIPS workshop on Bayesian Optimization and Decision Making*, 2012.

R. Garnett, Y. Krishnamurthy, D. Wang, J. Schneider, R. Mann, "Bayesian Optimal Active Search on Graphs", *KDD Workshop on Mining and Learning with Graphs*, 2011.

B. Poczos, L. Xiong, J. Schneider, "Nonparametric Divergence Estimation for Machine Learning on Distributions", *The Learning Workshop (Snowbird)*, Ft. Lauderdale, FL, April 2011.

J. Schneider, J. Given, R. Le Bras, M. Fisseha, "Supervised Classification Methods for Seismic Phase Identification", *European Geosciences Union General Assembly*, Vienna, Austria, May 2010.

Y. Liu, N. Lazar, W. Rothfus, F. Dellaert, A. Moore, J. Schneider, T. Kanade,"Semantic based Biomedical Image Indexing and Retrieval",in *Trends and Advances in Content-Based Image and Video Retrieval*, 2004.

A. Goldenberg, J. Kubica, P. Komarek, A. Moore, J. Schneider, "A Comparison of Statistical and Machine Learning Algorithms on the Task of Link Completion", *KDD Workshop on Link Analysis for Detecting Complex Behavior*, 2003.

J. Kubica, A. Moore, D. Cohn, J. Schneider,"cGraph: A Fast Graph-Based Method for Link Analysis and Queries",*Proceedings of the 2003 IJCAI Text-Mining and Link-Analysis Workshop*, 2003.

A. Goldenberg, J. Kubica, P. Komarek, A. Moore, J. Schneider,"A Comparison of Statistical and Machine Learning Algorithms on the Task of Link Completion", *KDD Workshop on Link Analysis for Detecting Complex Behavior*, 2003.

A. Arora, V. Choudhary, K. Kannan, R. Krishnan, R. Padman and J. Schneider, "Value of Information in a Software Agent Marketplace", *Infonomics/Merit Workshop on Digitisation of Commerce: e-Intermediation*, Maastricht, November 23-24, 2001.

J. G. Schneider, "Open Loop Motor Skill Learning," In *Working notes, AAAI Fall Symposium: Machine Learning in Computer Vision*, K. Bowyer, L. Hall editors, 1993.

Patents

Nemanja Djuric, Vladan Radosavljevic, Thi Duong Nguyen, Tsung-Han Lin, Jeff Schneider, Henggang Cui, Fang-Chieh Chou, Tzu-Kuo Huang, "Object Motion Prediction and Autonomous Vehicle Control", US Patent 17466705, 2021.

Galen Clark Haynes, Ian Dewancker, Nemanja Djuric, Tzu-Kuo Huang, Tian Lan, Tsung-Han Lin, Micol Marchetti-Bowick, Vladan Radosavljevic, Jeff Schneider, Alexander David Styler, Neil Traft, Huahua Wang, Anthony Joseph Stentz, "Machine learning for predicting locations of objects perceived by autonomous vehicles", US Patent 10579063, 2020.

Nemanja Djuric, Henggang Cui, Thi Duong Nguyen, Fang-Chieh Chou, Tsung-Han Lin, Jeff Schneider, David McAllister Bradley, "Motion Prediction for Autonomous Devices", US Patent 16506522, 2020.

Andrew Raymond Sturges, Alexander Edward Chao, Yifang Liu, Xiaodong Zhang, Richard Brian Donnelly, Bryan John Nagy, Jeff Schneider, Collin Christopher Otis, "Determining Autonomous Vehicle Routes", US Patent 16866701, 2020.

Vladan Radosavljevic, Jeff Schneider, Alexander Edward Chao, "Parking Location Prediction", US Patent 15789425, 2019.

Invited Talks, Tutorials, and Panels

"Robots and Autonomy", US Coast Guard AI Boot Camp, (online), Dec 23, 2023.

"Reinforcement Learning for Controlled Nuclear Fusion in Tokamaks", *General Electric EDGE Symposium*, Niskayuna, NY, Sep 20, 2023.

"Reinforcement Learning: From Self-Driving Cars to Nuclear Fusion" , CMS Large Hadron Collider Annual Meeting, Pittsburgh, PA, May 31, 2023.

"Large Language Models", PNC Board of Directors Meeting, Pittsburgh, PA, May 24, 2023.

"Reinforcement Learning for Controlled Nuclear Fusion", *Cosmic Connections Symposium*, Flatiron Institute, New York, NY, May 23, 2023.

"Reinforcement Learning for Nuclear Fusion in Tokamaks", *Seminars on Physics informed Artificial Intelligence in Plasma Science*, (online), Jan 23, 2023.

"Panel on Autonomy and Trust", *Nexus 22: Bridging National Security and Autonomy*, Washington D.C., May 17, 2022.

"Reinforcement Learning: from Self Driving Cars to Nuclear Fusion", *United Nations AI for Good*, (online), May 19, 2022.

"Reinforcement Learning for Controlled Nuclear Fusion", *Google X Seminar Series*, Mountain View, CA (online), Mar 22, 2022.

"Self Driving Cars and AI", *Centre for Humanitarian Dialogue Working Group on AI-enabled Military Systems*, Geneva, Switzerland (virtual), Nov 8, 2021.

"Reinforcement Learning for Fusion: Self Driving Cars to Controlled Fusion", *International Atomic Energy Agency (IAEA) Technical Meeting on Artificial Intelligence for Nuclear Technology and Applications*, Vienna, Austria, Oct 25, 2021.

"Machine Learning for Prediction and Manipulation of Fusion Plasmas", *ITER Seminar*, Saint-Paul-les-Durance, France, Oct 11, 2021.

"Reinforcement Learning and Bayesian Optimization for Tokamak Control", *SIAM Conference on Computational Science and Engineering Symposium on Mathematical Challenges in Plasma Physics*, Fort Worth, TX, Mar 1, 2021.

"Self Driving Cars and AI", *Moscow Urban Forum: Superstar Cities. Transforming for Success*, Moscow, Russia, Jul 1, 2021.

"Self Driving Cars and AI: Transforming our Cities and our Lives and Scaling Up Bayesian Optimization for Real World Applications", *Machine Learning Tutorial for Naval Nuclear Lab*, Pittsburgh, PA, Jul 29, 2020.

"Scaling Up Bayesian Optimization for Real World Applications", *Flatiron Institute Machine Learning Seminar*, New York, NY, Feb 20, 2020.

"Scaling Up Bayesian Optimization for Real World Applications", *Joint Workshop on Scalable Image Informatics and Applications of Machine Learning to Materials Discovery*, Santa Barbara, CA, Feb 5, 2020.

"AI and Self Driving Cars", *Bosch AI Conference*, Renningen, Germany, Oct 29, 2019.

"Self Driving Cars and AI: Transforming Our Cities and Our Lives", *IEEE Workshop on Machine Learning for Signal Processing*, Pittsburgh, PA, Oct 13, 2019.

"Self Driving Cars and AI: Transforming Our Cities and Our Lives", *SATURN*, Pittsburgh, PA, May 9, 2019.

"Scaling Up BAyesian Optimization for Real World Applications", *Uber Science Symposium*, San Francisco, CA, May 3, 2019.

"AI and Machine Learning: From Self Driving Cars to Controlled Fusion", *DOE Office of Fusion Energy Sciences and Office of Advanced Scientific Computing Research Machine Learning Workshop*, Gaithersburg, MD, May 1, 2019.

"Self Driving Cars and AI", *CMU RI Seminar*, Pittsburgh, PA, Feb 15, 2019.

"Self Driving Cars and AI: Transforming Our Cities and Our Lives", *IEEE International Conference on Intelligent Transportation Systems*, Maui, Hawaii, Nov 5, 2018.

"Self Driving Cars and AI", *NITRD Workshop: The Convergence of High Performance Computing, Big Data, and Machine Learning*, Bethesda, MD, Oct 29-30, 2018.

"Panel on Industry and Robotics Research" ,*Robotics Science and Systems*, Pittsburgh, PA, Jun 26, 2018.

"Concept to Pavement: Launching a Self-Driving Product", *SXSW*, Austin, TX, Mar 11, 2018.

"Self-Driving Cars and AI: Transforming our Cities and our Lives", *Princeton Plasma Physics Lab Science on Saturday*, Princeton, NJ, Feb 17, 2018.

"Self Driving Cars and AI", *Auto.AI*, San Francisco, CA, Feb 28, 2018.

"Self Driving Cars and AI", *AI Frontiers*, Santa Clara, CA, Nov 5, 2017.

"Machine Learning for Controlling Complex Dynamic Systems", *Princeton Plasma Physics Colloquium*, Princeton, NJ, Nov 1, 2017.

"Machine Learning for Autonomous Vehicles", *ICML Tutorial*, Sydney, Australia, Aug 6, 2017.

"Computer Vision and Machine Learning Will Transform the Way We Move", *LDV Vision Summit*, New York, NY, May 24, 2017.

"How Self-Driving Cars Will Transform Our Cities and Our Lives", *TEDxCMU*, Pittsburgh, PA, Apr 1, 2017.

"Active Optimization and Self Driving Cars", *International Conference on Autonomous Agents and Multiagent Systems*, Sao Paulo, Brazil, May 8, 2017.

"Active Optimization and Self-Driving Cars", *National Academy of Science: Frontiers of Machine Learning*, Washington, D.C., Feb 1, 2017.

"Panel on AI", *AI X Prize*, Pittsburgh, PA, Nov 17, 2016.

"Bayesian Optimization and Embedded Learning Systems", *KDD Applied Data Science Invited Talk*, San Francisco, CA, Aug 15, 2016.

"Moving from Anomalies to Known Phenomena", *KDD Workshop on Outlier Definition, Detection, and Description on Demand*, San Francisco, CA, Aug 14, 2016.

"How machine learning helps Uber keep the disruptions coming", *Structure Data*, San Francisco, CA, Mar 9, 2016.

"Bayesian Optimization for Embedded Learning Systems", *NIPS Workshop on Bayesian Optmization: Flexibility and Scalability*, Dec 12, 2015.

"Bayesian Optimization for Embedded Learning Systems", *AAAI Fall Symposium on Embedded Learning Systems*, Washington, D.C., Nov 12, 2015.

"Machine learning algorithms I wish we had in hardware", *ICCAD HALO workshop*, Austin, TX, Nov 5, 2015.

"Machine Learning for Decision Making in the Era of Big Data", Amazon, Seattle, Feb 24, 2014.

"Robot snakes, sensor networks, and cosmology: How machine learning is changing the world", KSRI Speaker Series, Karlsruhe Institute of Technology, Germany, May 29, 2013.

"Learning Dynamic Models with Non-sequenced Data", UT Austin Data Mining Seminar Series, Austin, TX, Oct 28, 2011.

"Machine Learning Tutorials", Emerson Process Management, Pittsburgh, PA, June 8-17, 2010.

"Machine Learning Methods for Phase Classification in Seismology", *European Seismology Commission, 32nd General Assembly*, Montpellier, France, Sep 6-10, 2010.

"Finding Groups of Anomalies in Large Data Sets", *DOE Applied Mathematics Program Meeting*, Berkeley, CA, May 5, 2010.

"Anomaly Detection", *Pucon Symposium 2009: Advanced Mathematical Tools for Frontier Astronomy*, Pucon, Chile, Aug 6-8, 2009.

"Active Learning for Fitting Simulation Models to Observational Data", *IJCAI workshop on Machine Learning and AI Applications in Astrophysics and Cosmology*, Pasadena, CA, July 16-17, 2009.

"Data Mining Background", *Comprehensive Nuclear Test Ban Treaty Organization (CTBTO) workshop on Data Mining and Data Fusion*, Vienna, Austria, September 15, 2008.

"Machine Learning in in vivo Drug Discovery", *ICML workshop on Machine Learning in Health Care*, Helsinki, Finland, July 9, 2008.

"Machine Learning in in vivo Drug Discovery", *University of Illinois Chicago Department of Medicinal Chemistry and Pharmacognosy*, Chicago, IL, April 3, 2008.

"Machine Learning in in vivo Drug Discovery", *IT University of Copenhagen*, Copenhagen, Denmark, February 29, 2008.

"Machine Learning in in vivo Drug Discovery", *Institute for Operations Research and the Management Sciences (INFORMS)*, Pittsburgh, PA, Nov 6, 2006.

"Machine Learning in in vivo Drug Discovery", *University of Pittsburgh Department of Biomedical Informatics Colloquium*, Pittsburgh, PA, September 22, 2006.

"Machine Learning in in vivo Drug Discovery", *IBM T.J. Watson Research Center*, Yorktown, NY, June 14, 2006.

"Data Mining in Anti-Terrorism Applications", *SAMSI Kickoff Workshop for the program on Data Mining and Machine Learning*, Research Triangle, NC, Sep 7-9, 2003.

"Link Detection and Searching for Terrorist Threat Activity", *IJCAI Text Mining and Link Analysis Workshop*, Acapulco, Mexio, August 9, 2003.

"Statistical Data Mining Methods for Detecting Terrorist Attacks", *DARPA Workshop on Smart Systems for Recognizing Radiation Threats*, Arlington, VA, May 28-29, 2003.

"Algorithms in Data Mining with Remote Sensing Applications", *ASPRS 2003 Annual Conference*, Anchorage, Alaska, May 5-9, 2003.

Invited member of panel on "Homeland Security Technologies: What are they and why do states need them?", National Association of State Chief Information Officers (NASCIO) Midyear Conference, Pittsburgh, April 6-8, 2003.

"Safe Learning Control for Nonlinear Dynamic Systems", *NTU-CMU joint symposium on Advances in Robotics*, Nanyang Technological University, Singapore, Aug 24, 2001.

"Data Mining Tutorial", National Security Agency, Columbia, MD, May 21, 2001.

"Tree Codes and Clustering Algorithms", *National Virtual Observatory Conference*, Caltech, Pasadena, CA, June 13–16, 2000.

"Reinforcement Learning for the Real World", Polish Academy of Sciences, Warsaw, Poland, January 5, 2000.

J. Schneider, A. Dubrawski, "Tutorial: Data Mining for Industrial Applications", Masterfoods, Warsaw, Poland, January 5-7, 2000.

"Exploiting Model Uncertainty Estimates for Safe Dynamic Control Learning", *ICML-97 Workshop on Reinforcement Learning*, Nashville, Tennessee, July 9–12, 1997.

A. Moore, J. Schneider, "Tutorial: Data Mining Algorithms and Applications", FirstUSA, Wilmington, DE, September, 1996.

A. W. Moore, S. Schaal, J. G. Schneider, "Locally Weighted Learning: Algorithms and Applications for Robot and Process Control", AAAI-96 Tutorial, Portland, Oregon, August 4–8, 1996.

J. Schneider, "Experimentation for Process Optimization", AAAI Workshop on Artificial Intelligence and Manufacturing, Albuquerque, NM, June, 1996.

"Active Learning on Non-Stationary Functions," *AAAI Fall Symposium on Active Learning*, Boston, MA, November 10–12, 1995.

"An Architecture Based on Intelligent Experimentation," *Workshop on Architectures for Intelligent Control Systems* at the IEEE International Symposium on Intelligent Control, Columbus, OH, August 16-18, 1994.

"Using Cooperating Learning Controllers for Complex Tasks," *ZiF Conference on Integration of Elementary Functions into Complex Behavior* , Bielefeld, Germany, July 12–15, 1994.

"A PUMA goes to Spring Training: Learning through Trial and Error," presented at a meeting of the *Rochester chapter of the American Society of Mechanical Engineers*, Rochester, NY, March 24, 1994.

"Learning Closed Loop Motor Skills," *NIPS Workshop on Robot Learning in Continuous Domains*, Vail, CO, December 3, 1993.

Professional Activities

Grant review panels:

NSF IIS/III Small Panel	May 2014
DOE Early Career Research Program Panel Review	Feb 2014
DOE Early Career Research Program Panel Review	Feb 2013
NSF IIS/III Small Panel	Mar 2012
NSF FODAVA Panel	May 2011
DOE Early Career Research Program Panel Review	Jan 2011
NSF CAREER Graph Data Panel	Oct 2007.
NSF Review Panel for the Large Synoptic Survey Telescope (LSST) project	Sep 2007.
NASA Applied Information Systems Research Program	May 2003.
Research Grants Council of Hong Kong	Mar 2003.
National Science Foundation SBIR in Artificial Intelligence	Aug 2002.

Boards:

Editorial Board of Machine Learning Journal (2006-)
International Machine Learning Society (IMLS) Secretary (2009-2017)
Civic Science, Scientific Advisory Board (2009-)
Idelic, Advisory Board (2018-)
Department of Energy Smart Mobility Consortium, Executive Advisory Board (2018-2024)
Department of the Air Force Scientific Advisory Board, AQB Consultant (2023-)

Reviewed papers for:

Int. Conf. on Computer Vision	IEEE Conf. on Computer Vision and Pattern Recognition
IEEE Conf. on Advanced Robotics	IEEE Conf. on Robotics and Automation
Journal of AI Research	Conf. on Neural Information Processing Systems
Artificial Intelligence Journal	IEEE Trans. on Robotics and Automation
Int. Journal of Systems Science	IEEE Trans. on Sys. Man, and Cybernetics
Journal of Process Control	IEEE American Control Conference
AAAI National Conference	Int. Conference on Machine Learning
Int. Joint Conf. on Artificial Intelligence	Int. Journal of Robotics Research
Pure and Applied Geophysics	Machine Learning Journal

Past and current PhD students:

Drew Bagnell	CMU RI	Graduated 2005
Rosemary Emery	CMU RI	Graduated 2005
Brent Bryan	CMU MLD	Graduated 2008
Kaustav Das	CMU MLD	Graduated 2009
Yi Zhang	CMU MLD	Graduated 2012
Tzu-Kuo Huang	CMU MLD	Graduated 2013
Liang Xiong	CMU MLD	Graduated 2013
Matt Tesch	CMU RI	Graduated 2013
Dougal Sutherland	CMU CS	Graduated 2016
Yifei Ma	CMU MLD	Graduated 2017
Xuezhi Wang	CMU CS	Graduated 2016
Junier Oliva	CMU MLD	Graduated 2018
Kirthevasan Kandasamy	CMU MLD	Graduated 2018
Zhiqian Qiao	CMU ECE	Graduated 2021
Robin Sabhnani	CMU MLD	
Biswajit Paria	CMU MLD	Graduated 2022
Viraj Mehta	CMU RI	Graduated 2023
Ian Char	CMU MLD	Graduated 2024
Adam Villaflor	CMU RI	Graduated 2024
Yeeho Song	CMU RI	Graduated 2024
Arundhati Banerjee	CMU MLD	
Conor Igoe	CMU MLD	
Tejus Gupta	CMU RI	
Brian Yang	CMU RI	
Ben Freed	CMU RI	
Namrata Deka	CMU MLD	
Fahim Tajwar	CMU MLD	
Albert Xu	CMU RI	
Aravind Venugopal	CMU MLD	
Grace Liu	CMU MLD	
Efe Mert Karagozlu	CMU MLD	
Anoushka Alavilli	CMU RI	
Selina Carter	CMU Stats	