

Roman Garnett

Washington University in St. Louis
Computer Science and Engineering
Campus Box 1045, Jolley Hall 504
St. Louis, MO 63130

☎ +1 (314) 935-4992
📠 +1 (314) 935-7130
✉ garnett@wustl.edu
🌐 www.cse.wustl.edu/~garnett

Education

University of Oxford

2010 DPhil in Engineering Science

Thesis: Learning from Data Streams with Concept Drift

Advisor: Stephen J Roberts

Washington University in St. Louis

2004 MSc in Computer Science

2004 AB in Mathematics, *summa cum laude*

Professional Appointments

Washington University in St. Louis, St. Louis, MO, USA

2021- Associate Professor (with tenure)

2015-21 Assistant Professor

Department of Computer Science and Engineering

Uber (sabbatical leave from Washington University)

2022- Staff Applied Scientist

University of Bonn, Bonn, Germany

2012-14 Postdoctoral Researcher

Knowledge Discovery and Machine Learning Group

Carnegie Mellon University, Pittsburgh, PA, USA

2010-12 Postdoctoral Researcher

Auton Lab, Robotics Institute

National Security Agency, Ft. Meade, MD, USA

2004-10 Applied Research Mathematician

Awards & Distinctions

2019 NSF CAREER award

2019 Best paper nomination, **EUROVIS 2019**

2019 Best reviewer award, **NEURIPS 2019**

2014 Outstanding reviewer award, **NEURIPS 2014**

- 2006–09 Clarendon Scholarship, full-tuition scholarship with stipend awarded by the University of Oxford to those “with the best proven and future potential.”
- 2004 Ross R Middlemiss Prize in Mathematics, awarded by the Washington University in St. Louis Mathematics Department to “a graduating mathematics major with an outstanding record.”
- 2004 Computer Science Department Chairman’s Award, Washington University in St. Louis.
- Erdős number 2, path: Roman Garnett → Charles Chui → Erdős Pál.

Publications

My Google Scholar profile is available [here](#).

BOOK

- 2023 R GARNETT. *Bayesian Optimization*. Cambridge University Press, in press.

CONFERENCE PAPERS (PEER REVIEWED)

- 2022 Q NGUYEN, K WU, JR GARDNER, AND R GARNETT. Local Bayesian optimization via maximizing probability of descent. *Conference on Neural Information Processing Systems (NEURIPS 2022)*.
- 2022 S HA, S MONADJEMI, R GARNETT, AND A OTTLEY. A Unified Comparison of User Modeling Techniques for Predicting Data Interaction and Detecting Exploration Bias. *IEEE Visualization and Visual Analytics Conference (VIS 2022)*.
- 2022 S MONADJEMI, S HA, Q NGUYEN, H CHAI, R GARNETT, AND A OTTLEY. Guided Data Discovery in Interactive Visualizations via Active Search. *IEEE Visualization and Visual Analytics Conference (VIS 2022)*.
- 2021 Q NGUYEN, A MODIRI, AND R GARNETT. Nonmyopic Multifidelity Active Search. *International Conference on Machine Learning (ICML 2021)*.
- 2021 Q NGUYEN, S DAS, AND R GARNETT. Scarce Societal Resource Allocation and the Price of (Local) Justice. *AAAI Conference on Artificial Intelligence (AAAI 2021)*.
- 2020 S JIANG, D JIANG, M BALANDAT, B KARRER, J GARDNER, AND R GARNETT. Efficient Nonmyopic Bayesian Optimization via One-Shot Multi-Step Trees. *Conference on Neural Information Processing Systems (NEURIPS 2020)*.
- 2020 JB DUCK–MAYR, R GARNETT, AND J MONTGOMERY. GPIRT: A Gaussian Process Model for Item Response Theory. *Conference on Uncertainty in Artificial Intelligence (UAI 2020)*.
- 2020 S JIANG, H CHAI, J GONZÁLEZ, AND R GARNETT. BINOCULARS for Efficient, Nonmyopic Sequential Experimental Design. *International Conference on Machine Learning (ICML 2020)*.
- 2019 M ZHANG, S JIANG, Z CUI, R GARNETT, AND Y CHEN. D-VAE: A Variational Autoencoder for Directed Acyclic Graphs. *Conference on Neural Information Processing Systems (NEURIPS 2019)*.
- 2019 S JIANG, R GARNETT, AND B MOSELEY. Cost effective active search. *Conference on Neural Information Processing Systems (NEURIPS 2019)*.

- 2019 H CHAI, JF TON, MA OSBORNE, AND R GARNETT. Automated Model Selection with Bayesian Quadrature. *International Conference on Machine Learning (ICML 2019)*.
- 2019 A OTTLEY, R GARNETT, AND R WAN. Follow The Clicks: Learning and Anticipating Mouse Interactions During Exploratory Data Analysis (**best paper nomination**). *EG/VGTC Conference on Visualization (EUROVIS 2019)*.
- 2019 H CHAI AND R GARNETT. Improving Quadrature for Constrained Integrand. *International Conference on Artificial Intelligence and Statistics (AISTATS 2019)*.
- 2018 G MALKOMES AND R GARNETT. Automating Bayesian optimization with Bayesian optimization. *Conference on Neural Information Processing Systems (NEURIPS 2018)*.
- 2018 S JIANG, G MALKOMES, M ABBOTT, B MOSELEY, AND R GARNETT. Efficient nonmyopic batch active search. *Conference on Neural Information Processing Systems (NEURIPS 2018)*.
- 2018 T DARWIN, R GARNETT, AND D DJURDJANOVIC. Gaussian Process Regression for Virtual Metrology of Microchip Quality and the Resulting Selective Sampling Scheme. *International Conference on the Industry 4.0 model for Advanced Manufacturing (AMP 2018)*.
- 2017 S JIANG, G MALKOMES, G CONVERSE, A SHOFNER, B MOSELEY, AND R GARNETT. Efficient nonmyopic active search. *International Conference on Machine Learning (ICML 2017)*.
- 2017 G MALKOMES, K LU, B HOFFMAN, R GARNETT, B MOSELEY AND RP MANN. Cooperative Set Function Optimization Without Communication or Coordination. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2017)*.
- 2017 JR GARDNER, C GUO, KQ WEINBERGER, R GARNETT, AND R GROSSE. Discovering and Exploiting Additive Structure for Bayesian Optimization. *International Conference on Artificial Intelligence and Statistics (AISTATS 2017)*.
- 2017 Y MA, R GARNETT, AND J SCHNEIDER. Active Search for Sparse Signals with Region Sensing. *AAAI Conference on Artificial Intelligence (AAAI 2017)*.
- 2017 D OGLIC, R GARNETT, AND T GÄRTNER. Active Search in Intensionally Specified Structured Spaces. *AAAI Conference on Artificial Intelligence (AAAI 2017)*.
- 2016 G MALKOMES, C SCHAFF, AND R GARNETT. Bayesian Optimization for Automated Model Selection. *Conference on Neural Information Processing Systems (NEURIPS 2016)*.
- 2016 S CARR, R GARNETT, AND C LO. BASC: Applying Bayesian Optimization to the Search for Global Minima on Potential Energy Surfaces. *International Conference on Machine Learning (ICML 2016)*.
- 2015 JR GARDNER, G MALKOMES, R GARNETT, KQ WEINBERGER, D BARBOUR, AND JP CUNNINGHAM. Bayesian Active Model Selection with an Application to Automated Audiometry. *Conference on Neural Information Processing Systems (NEURIPS 2015)*.
- 2015 R GARNETT, S HO, AND J SCHNEIDER. Finding Galaxies in the Shadows of Quasars with Gaussian Processes. *International Conference on Machine Learning (ICML 2015)*.
- 2015 MJ KUSNER, JR GARDNER, R GARNETT, AND KQ WEINBERGER. Differentially Private Bayesian Optimization. *International Conference on Machine Learning (ICML 2015)*.

- 2015 Y MA, D SUTHERLAND, R GARNETT, AND J SCHNEIDER. Active Pointillistic Pattern Search. *International Conference on Artificial Intelligence and Statistics (AISTATS 2015)*.
- 2014 T GUNTER, MA OSBORNE, R GARNETT, P HENNIG, AND SJ ROBERTS. Sampling for Inference in Probabilistic Models with Fast Bayesian Quadrature. *Conference on Neural Information Processing Systems (NEURIPS 2014)*.
- 2014 R GARNETT, T GÄRTNER, T ELLERSIEK, E GUÐMONDSSON, AND P ÓSKARSSON. Predicting Unexpected Influxes of Players in EVE Online. *IEEE Conference on Computational Intelligence and Games (CIG 2014)*.
- 2014 R GARNETT, MA OSBORNE, AND P HENNIG. Active Learning of Linear Embeddings for Gaussian Processes. *Conference on Uncertainty in Artificial Intelligence (UAI 2014)*.
- 2014 K KERSTING, M MLADENOV, R GARNETT, AND M GROHE. Power Iterated Color Refinement. *AAAI Conference on Artificial Intelligence (AAAI 2014)*.
- 2014 Y MA, R GARNETT, AND J SCHNEIDER. Active Area Search via Bayesian Quadrature. *International Conference on Artificial Intelligence and Statistics (AISTATS 2014)*.
- 2013 Y MA, R GARNETT, AND J SCHNEIDER. Σ -Optimality for Active Learning on Gaussian Random Fields. *Conference on Neural Information Processing Systems (NEURIPS 2013)*.
- 2013 M NEUMANN, R GARNETT, AND K KERSTING. Coinciding Walk Kernels: Parallel Absorbing Random Walks for Learning with Graphs and Few Labels. *Asian Conference on Machine Learning (ACML 2013)*.
- 2013 X WANG, R GARNETT, AND J SCHNEIDER. Active Search on Graphs. *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2013)*.
- 2012 MA OSBORNE, D DUVENAUD, R GARNETT, CE RASMUSSEN, SJ ROBERTS, AND Z GHAHRAMANI. Active Learning of Model Evidence Using Bayesian Quadrature. *Conference on Neural Information Processing Systems (NEURIPS 2012)*.
- 2012 M NEUMANN, N PATRICIA, R GARNETT, AND K KERSTING. Efficient Graph Kernels by Randomization. *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2012)*.
- 2012 R GARNETT, Y KRISHNAMURTHY, X XIONG, J SCHNEIDER, AND RP MANN. Bayesian Optimal Active Search and Surveying. *International Conference on Machine Learning (ICML 2012)*.
- 2012 MA OSBORNE, R GARNETT, K SWERSKY, AND N DE FREITAS. Prediction and Fault Detection of Environmental Signals with Uncharacterised Faults. *AAAI Conference on Artificial Intelligence (AAAI 2012)*.
- 2012 MA OSBORNE, R GARNETT, SJ ROBERTS, C HART, S AIGRAIN, AND N GIBSON. Bayesian Quadrature for Ratios. *International Conference on Artificial Intelligence and Statistics (AISTATS 2012)*.
- 2010 MA OSBORNE, R GARNETT, AND SJ ROBERTS. Active Data Selection for Sensor Networks with Faults and Changepoints. *IEEE International Conference on Information Networking and Applications (AINA 2010)*.

- 2010 R GARNETT, MA OSBORNE, AND SJ ROBERTS. Bayesian Optimization for Sensor Set Selection. *ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN 2010)*.
- 2009 R GARNETT, MA OSBORNE, AND SJ ROBERTS. Sequential Bayesian Prediction in the Presence of Changepoints. *International Conference on Machine Learning (ICML 2009)*.
- 2009 MA OSBORNE, R GARNETT, AND SJ ROBERTS. Gaussian Processes for Global Optimization. *International Conference on Learning and Intelligent Optimization (LION 2009)*.

JOURNAL PAPERS

- 2022 Y CHEN, R GARNETT, AND JM MONTGOMERY. Polls, Context, and Time: A Dynamic Hierarchical Bayesian Forecasting Model for US Senate Elections. *Political Analysis*, to appear.
- 2021 F MUKADUM, Q NGUYEN, DM ADRION, G APPLEBY, R CHEN, H DANG, R CHANG, R GARNETT, AND S LOPEZ. Efficient Discovery of Visible Light-Activated Azoarene Photoswitches with Long Half-Lives Using Active Search. *Journal of Chemical Information and Modeling*, 61(11):5524–5534.
- 2021 MN WARDEN, SS NIELSEN, A CAMACHO-SOTO, R GARNETT, AND BA RACETTE. A comparison of prediction approaches for identifying prodromal Parkinson disease. *PLoS ONE*, 16(8):e0256592.
- 2021 MF HO, S BIRD, AND R GARNETT. Damped Lyman- α absorbers from Sloan digital sky survey DR16Q with Gaussian processes. *Monthly Notices of the Royal Astronomical Society*, 507(1):704–719.
- 2021 D MISHRA, ET AL. IDCube Lite: Free Interactive Discovery Cube software for multi and hyper-spectral applications. *Journal of Spectral Imaging*, 10:a1.
- 2020 S MONADJEMI, R GARNETT, AND A OTTLEY. Competing Models: Inferring Exploration Patterns and Information Relevance via Bayesian Model Selection. *IEEE Transactions on Visualization and Computer Graphics*, 27(2):412–421.
- 2020 L FAUBER, MF HO, S BIRD, CR SHELTON, R GARNETT, AND I KORDE. Automated Measurement of Quasar Redshift with a Gaussian Process. *Monthly Notices of the Royal Astronomical Society*, 498(4):5227–5239.
- 2020 MF HO, S BIRD, AND R GARNETT. Detecting multiple DLAs per spectrum in SDSS DR12 with Gaussian processes. *Monthly Notices of the Royal Astronomical Society*, 496(4):5436–5454.
- 2020 T RONAN, R GARNETT, AND KM NAEGLE. New analysis pipeline for high-throughput domain-peptide affinity experiments improves SH2 interaction data. *Journal of Biological Chemistry*, 295(32):11346–11363.
- 2019 DL BARBOUR, JC DILORENZIO, KA SUKESAN, XD SONG, JY CHEN, EA DEGEN, KL HEISEY, R GARNETT. Conjoint psychometric field estimation for bilateral audiometry. *Behavior Research Methods*, 51(3):1271–1285.
- 2018 SB POWELL, R GARNETT, J MARSHALL, C RIZK, AND V GRUEV. Bioinspired polarization vision enables underwater geolocalization. *Science Advances*, 4(4):eaa06841.

- 2018 D OGLIC, SA OATLEY, SJF MACDONALD, T MCINALLY, R GARNETT, JD HIRST, AND T GÄRTNER. Active Search for Computer-Aided Drug Design. *Molecular Informatics*, 37(1–2):1700130.
- 2017 R GARNETT, S HO, S BIRD, AND J SCHNEIDER. Detecting damped Ly α absorbers with Gaussian processes. *Monthly Notices of the Royal Astronomical Society*, 472(2):1850–1865.
- 2017 X SONG, R GARNETT, AND D BARBOUR. Psychometric function estimation by probabilistic classification. *Journal of the Acoustical Society of America*, 141(4):2513–2525.
- 2016 S BIRD, R GARNETT, AND S HO. Statistical properties of damped Lyman-alpha systems from Sloan Digital Sky Survey DR12. *Monthly Notices of the Royal Astronomical Society*, 466(2):2111–2122.
- 2016 SF CARR, R GARNETT, AND CS LO. Accelerating the search for global minima on potential energy surfaces using machine learning. *Journal of Chemical Physics*, 145:154106.
- 2015 M NEUMANN, R GARNETT, K KERSTING, AND C BAUCKHAGE. Propagation Kernels: Efficient Graph Kernels from Propagated Information. *Machine Learning*, 102(2):209–245.
- 2015 RP MANN AND R GARNETT. The Entropic Basis of Collective Behaviour. *Journal of the Royal Society Interface*, 12(106):20150037.
- 2015 R GARNETT, T GÄRTNER, M VOGT, AND J BAJORATH. Introducing the ‘Active Search’ Method for Iterative Virtual Screening. *Journal of Computer-Aided Molecular Design*, 29(4):305–314.
- 2013 RP MANN, A PERNA, D STRÖMBOM, R GARNETT, JE HERBERT–READ, DJT SUMPTER, AND AJW WARD. Multi-scale Inference of Interaction Rules in Animal Groups using Bayesian Model Selection. *PLoS Computational Biology*, 9(3):e1002961.
- 2011 RP MANN, R FREEMAN, MA OSBORNE, R GARNETT, C ARMSTRONG, J MEADE, D BIRO, T GUILFORD, AND SJ ROBERTS. Objectively Identifying Landmark Use and Predicting Flight Trajectories of the Homing Pigeon using Gaussian Processes. *Journal of the Royal Society Interface*, 8(55):210–219.
- 2010 D LOWNE, SJ ROBERTS, AND R GARNETT. Sequential Nonstationary Dynamic Classification with Sparse Feedback. *Pattern Recognition*, 43(3):897–905.
- 2010 R GARNETT, MA OSBORNE, S REECE, A ROGERS, AND SJ ROBERTS. Sequential Bayesian Prediction in the Presence of Changepoints and Faults. *The Computer Journal*, 43(9):1430–1446.
- 2005 R GARNETT, T HUEGERICH, W HE, AND C CHUI. A Universal Noise Removal Algorithm with an Impulse Detector. *IEEE Transactions on Image Processing*, 14(11):1747–1754.

CONFERENCE PAPERS (ABSTRACT SUBMISSION)

- 2021 D MISHRA, J WANG, S WANG, Q CAO, H HURBON, Q WU, H ZHANG, R GARNETT, AND M BEREZIN. Visualization of blood vessels using a contrast maximization algorithm in the hyperspectral domain. *OSA Optical Sensors and Sensing Congress*.
- 2018 D OGLIC, SA OATLEY, SJF MACDONALD, T MCINALLY, R GARNETT, JD HIRST, AND T GÄRTNER. Active Search for Computer-Aided Drug Design. *International Conference on Chemical Structures (ICCS 2018)*.

- 2013 R GARNETT, RP MANN, AND T GÄRTNER. Animal Foraging via Optimal Search. *International Conference on Models in Population Dynamics and Ecology (MPDE 2013)*.
- 2011 R LONKAR, A DUBRAWski, M FITERAU, AND R GARNETT. Mining Intensive Care Vitals for Leading Indicators of Adverse Health Events. *Conference of the International Society for Disease Surveillance (ISDS 2011)*.
- 2011 RP MANN, A PERNA, D STRÖMBOM, DJT SUMPTER, R GARNETT, JE HERBERT-READ, AND AJW WARD. Prawns and Probability. *International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT 2011)*.
- 2009 RP MANN, R FREEMAN, MA OSBORNE, R GARNETT, J MEADE, C ARMSTRONG, D BIRO, T GUILFORD, AND SJ ROBERTS. Gaussian Processes for Prediction of Homing Pigeon Flight Trajectories. *International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT 2009)*.
- 2008 MA OSBORNE, R GARNETT, AND SJ ROBERTS. Gaussian Processes for Global Optimization. *Yalta Conference on Discrete and Global Optimization*.

PREPRINTS

- 2022 A NOVICK AND Q NGUYEN AND R GARNETT AND E TOBERER AND V STEVANOVIĆ. The Mixing Thermodynamics and Local Structure of High-entropy Alloys from Randomly Sampled Ordered Configurations. arXiv preprint arXiv:2211.13066 [cond-mat.mtrl-sci].
- 2022 Q NGUYEN AND R GARNETT. Nonmyopic Multiclass Active Search for Diverse Discovery. arXiv preprint arXiv:2202.03593 [cs.LG].

THESES

- 2010 Learning from Data Streams with Concept Drift. DPhil thesis, University of Oxford.
- 2004 Modeling Local Video Statistics for Anomaly Detection. MSc thesis, Washington University in St. Louis.

Tutorials

- 2023 Tutorial on Bayesian Optimization, Probabilistic Numerics Spring School.
- 2023 Tutorial on Bayesian Experimental Design, AI for Materials Science Bridge Program, AAAI Conference on Artificial Intelligence AAAI 2023.
- 2022 Tutorial on Bayesian Experimental Design, AI + Science Summer School, University of Chicago.

Invited Talks

- 2022 Tutorial on Advances in Bayesian Optimization (panelist), Conference on Neural Information Processing Systems (NEURIPS 2022).
- 2021 Dagstuhl Seminar: Probabilistic Numerical Methods, Schloss Dagstuhl.

- 2021 Minisymposium on Bayesian Methods in Science and Engineering, SIAM Conference on Mathematics and Data Science (MDS).
- 2020 Statistical and Optimal Learning Session, INFORMS Annual Meeting (INFORMS).
- 2020 Adaptive Experimentation Workshop, Facebook.
- 2019 Closing the Loop—Using Machine Learning in High-Throughput Discovery of New Materials, Materials Research Society Meeting (MRS).
- 2019 Bayesian Machine Learning Session, INFORMS Annual Meeting (INFORMS).
- 2019 Bayesian Optimization Session, Joint Statistical Meetings (JSM).
- 2019 Machine Learning in Science Workshop, University of Tübingen.
- 2018 Remote Sensing Seminar, St. Louis University.
- 2018 Bayesian Optimization Session, INFORMS Optimization Society Conference.
- 2017 Metalearning Symposium, Conference on Neural Information Processing Systems (NEURIPS 2017).
- 2017 Applied Mathematics Seminar, Brown University.
- 2017 Mechanical Engineering Seminar, Massachusetts Institute of Technology.
- 2017 Machine Learning Seminar, University of Toronto.
- 2017 Probabilistic Scientific Computing Workshop, ICERM.
- 2017 Monsanto Science Fellows Symposium, Monsanto.
- 2016 Bayesian Optimization Workshop, Conference on Neural Information Processing Systems (NEURIPS 2016).
- 2016 Dagstuhl Seminar: New Directions for Learning with Kernels and Gaussian Processes, Schloss Dagstuhl.
- 2016 Statistics Seminar, University of Oxford Department of Statistics.
- 2016 Statistics Seminar, University of Leeds Department of Statistics.
- 2016 Data Science Seminar, University of Nottingham School of Computer Science.
- 2016 Automated Algorithm Design Seminar, University of Freiburg Department of Computer Science.
- 2016 Probabilistic Numerics: Integrating Inference with Integration, IMS–ISBA Joint Meeting: Bayes Comp.
- 2015 Probabilistic Integration Workshop, Conference on Neural Information Processing Systems (NEURIPS 2015).
- 2014 Learning & Adaptive Systems Seminar, ETH Zürich Department of Computer Science.
- 2014 Machine Learning Seminar, University of Cambridge Engineering Department.
- 2014 Computer Science Colloquium, Washington University in St. Louis.
- 2014 Computer Science Seminar, Virginia Tech.
- 2012 Machine Learning Seminar, University of Toronto.
- 2012 College of Information Sciences and Technology Seminar Series, The Pennsylvania State University.
- 2012 Knowledge Discovery and Machine Learning Reading Group, Fraunhofer Institute for Intelligent Analysis and Information Systems (IAIS).
- 2012 Statistical Methods Seminar Series, National Security Agency.
- 2011 Centre for Interdisciplinary Mathematics Complex Systems Working Lunch, Uppsala University.
- 2010 Statistical Methods Seminar Series, National Security Agency.

Campus and Departmental Talks

- 2020 Seminar Series, Department of Energy, Environmental & Chemical Engineering.
- 2016 Astrophysics Seminar, Department of Physics.
- 2015 Seminar Series, Institute of Materials Science and Engineering.
- 2015 Probability and Statistics Reading Group, Department of Mathematics.
- 2015 Machine Learning Lunch Seminar, Department of Computer Science and Engineering.

Professional Service

COMMITTEE MEMBERSHIP

- 2023 Program Co-Chair. *International Conference on Automated Machine Learning (AUTOML-CONF)*.
- 2015–19 Publications and Electronic Proceedings Chair. *Conference on Neural Information and Processing Systems (NEURIPS)*.

EDITORIAL POSITIONS

- 2022– Action editor, *Transactions on Machine Learning Research*.
- 2018– Associate editor, *Frontiers in Big Data*.
- 2018–20 Guest editor, special issue on Bayesian optimization, *Journal of Machine Learning Research*.

WORKSHOPS, ETC. CO-ORGANIZED

- 2023 AI for Materials Science Bridge Program. *AAAI Conference on Artificial Intelligence (AAAI)*.
- 2018 Automated Machine Learning. *Federated AI Meeting (FAIM)*.
- 2017 Automated Machine Learning. *International Conference on Machine Learning (ICML)*.
- 2015 Constructive Machine Learning. *International Conference on Machine Learning (ICML)*.
- 2013 Constructive Machine Learning. *Conference on Neural Information and Processing Systems (NEURIPS)*.
- 2012 Bayesian Optimization and Decision Making. *Conference on Neural Information and Processing Systems (NEURIPS)*.
- 2011 Bayesian Optimization, Experimental Design and Bandits: Theory and Applications. *Conference on Neural Information and Processing Systems (NEURIPS)*.

JOURNAL REVIEWING (2015–)

Journal of Machine Learning Research
Machine Learning
Nature Communications
Proceedings of the IEEE
IEEE Transactions on Pattern Analysis and Machine Intelligence
Operations Research
Journal on Uncertainty Quantification
Statistics and Computing
Knowledge and Information Systems
Data Mining and Knowledge Discovery
GigaScience
Journal of Heuristics

CONFERENCE REVIEWING (SENIOR PROGRAM COMMITTEE MEMBER) (2015–)

Conference on Neural Information and Processing Systems (NEURIPS)

International Conference on Machine Learning (ICML)

International Conference on Artificial Intelligence and Statistics (AISTATS)

Automated Machine Learning Conference (AUTOML)

AAAI Conference on Artificial Intelligence (AAAI)

International Joint Conference on Artificial Intelligence (IJCAI)

CONFERENCE REVIEWING (PROGRAM COMMITTEE MEMBER) (2015–)

Conference on Neural Information and Processing Systems (NEURIPS)

International Conference on Machine Learning (ICML)

AAAI Conference on Artificial Intelligence (AAAI)

Conference on Uncertainty in Artificial Intelligence (UAI)

International Conference on Statistics in Artificial Intelligence (AISTATS)

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)

WORKSHOP REVIEWING (2015–)

New in ML Workshop, *Conference on Neural Information Processing Systems*

Meta-Learning Workshop, *Conference on Neural Information Processing Systems (METALEARN)*

Automated Machine Learning Workshop, *International Conference on Machine Learning (AUTOML)*

Bayesian Optimization Workshop, *Conference on Neural Information and Processing Systems (BAYESOPT)*

Student Advising

PHD STUDENTS: GRADUATED

- 2016–21 Henry Chai, Washington University in St. Louis.
Thesis: *Bayesian Quadrature with Prior Information: Modeling and Policies*.
Current position: Faculty, Carnegie Mellon University.
- 2015–20 Shali Jiang, Washington University in St. Louis.
Thesis: *Efficient Nonmyopic Sequential Experimental Design*.
Winner, 2020 Turner Dissertation Award for Best Dissertation in CSE
Current position: Meta.
- 2015–19 Gustavo Malkomes, Washington University in St. Louis.
Thesis: *Automating Active Learning for Gaussian Processes*.
Winner, 2019 Turner Dissertation Award for Best Dissertation in CSE
Current position: Intel.
- 2012–17 Yifei Ma (co-advised with Jeff Schneider), Carnegie Mellon University.
Thesis: *Active Search with Complex Actions and Rewards*.
Current position: Amazon.

PHD STUDENTS: CURRENT

- 2019– Yehu Chen (co-advised with Jacob Montgomery), Washington University in St. Louis, expected graduation: 2024.
- 2019– Quan Nguyen, Washington University in St. Louis, expected graduation: 2024.
- 2018– Shayan Monadjemi (co-advised with Alvitta Ottley), Washington University in St. Louis, expected graduation: 2023.

MASTER’S THESES/PROJECTS SUPERVISED

- 2020 Tyler Kirby, Washington University in St. Louis.
Project: *Bayesian Optimization for Dynamic Pricing*
- 2018 Louis Schlessinger, Washington University in St. Louis.
Thesis: *Automated Kernel Search Using Evolutionary Algorithms*
- 2016–17 James DiLorenzo, Washington University in St. Louis.
Thesis: *Active Learning for Bilateral Audiometry*
- 2015–16 Stephen Decker, Washington University in St. Louis.
Project: *Visualization of Human Movement Patterns for Social Science*
- 2015–16 Paul Egger, Washington University in St. Louis.
Project: *Analyzing Movement Patterns in Massive Multiplayer Online Role-Playing Games*
- 2015 Shane Carr, Washington University in St. Louis.
Thesis: *Applying Bayesian Machine Learning Methods to Surface Chemistry Calculations*
- 2014–15 Shan Huang, University of Bonn.
Thesis: *Batch Active Search via Determinantal Point Processes*

Teaching

Washington University in St. Louis

Instructor, Special Topics in Computer Science Theory: Bayesian Optimization, 2 semesters
Instructor, Introduction to Artificial Intelligence, 5 semesters
Instructor, Bayesian Methods in Machine Learning, 5 semesters
Facilitator, Research Seminar on Machine Learning, 9 semesters

University of Bonn

Supervisor, Principles of Data Mining and Learning Algorithms: Online Learning Methods

Funding

- 2021– NSF: HDR Institute: Institute for Data Driven Dynamical Design (1D4), \$15,540,749 (NSF) 09/2021–08/2026.
- 2019– NSF: FairGame: An Audit-Driven Game Theoretic Framework for Development and Certification of Fair AI, \$444,145 (NSF), \$340,854 (Amazon), 1/2020–12/2022.
- 2019– NSF: Accelerating the Discovery of Electronic Materials through Human-Computer Active Search, \$305,855, 10/2019–9/2021.
- 2019– NSF: CAREER: Active Machine Learning for Automating Scientific Discovery, \$497,693 3/2019–2/2024.

2019- NSF: REU Site: Big Data Analytics, \$359,994, 4/2019-3/2022.
2018- Amazon AWS ML Research Award: Automatic Measurement of Quasar Distance, \$75,000.
2018-19 DARPA: Automated Discovery with Bayesian Optimization: From a Bag of Models to the Best
Model, \$100,000, 4/2018-3/2019.
2016-18 NSF: REU Site: Big Data Analytics, \$359,111, 4/2016-3/2019.
2015-19 ARPA-E: A reference phenotyping system for energy sorghum, \$847,296, 9/2015-9/2019.
2015-19 NSF: The Missouri Transect: Climate, plants, and community, \$569,945, 8/2014-7/2019.