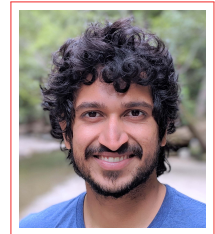


Aaditya K. Ramdas

Curriculum Vitae

✉ aramdas@stat.cmu.edu
📁 stat.cmu.edu/~aramdas



Research summary

My research spans algorithms, theory and applications of statistical inference and machine learning:

- **reproducibility in science and technology** (controlling false discoveries in novel static and dynamic settings, multiple hypothesis testing, selective and simultaneous inference)
- **active sequential decision-making and experimentation for online and streaming settings** (human-in-the-loop interactive testing, large-scale A/B-testing, multi-armed bandits)
- **assumption-light uncertainty quantification** (always-valid sequential confidence intervals, any-time p -values, conformal prediction intervals, quantile confidence sequences)

A brief personalized summary of the contents of this document:

- **(Research)** I publish high quality papers at top Stat/Prob journals (AoS, JRSSB, Biometrika, PTRF, EJS,...) and AI/ML conferences (NeurIPS, ICML, COLT, ICLR, AAI, IJCAI, AISTATS,...).
- **(Service)** Area chair or senior PC member for NeurIPS, COLT, ICML, AISTATS, UAI, ALT, and reviewer for over 30 other journals/conferences, organizer of several ML/Stat workshops.
- **(Dissemination)** I enjoy clearly communicating my research, have given over 100 invited research talks at university seminars, industry research labs, conferences, tutorials and outreach at schools.
- **(Teaching)** I have undergone rigorous training in pedagogical principles and philosophy, and have offered multiple different PhD level classes that I designed from scratch on contemporary topics.

Employment

2018– Assistant Professor (tenure-track).
Department of Statistics and Data Science (Diettrich College)
Machine Learning Department (School of CS)
Carnegie Mellon University (CMU), Pittsburgh (USA)
[NSF CAREER Award \(2020-24, recommended 11/15/2019\)](#)
[Adobe Faculty Research Award \(2019-20\)](#)

2015–18 Postdoctoral Researcher in EECS and Statistics.
University of California, Berkeley (UCB), Berkeley (USA)
Mentors: Michael I. Jordan & Martin J. Wainwright

Academic Background

2010–15 PhD in Statistics and Machine Learning.
Carnegie Mellon University (CMU), Pittsburgh (USA) GPA 4.2/4
Advisors: Larry Wasserman & Aarti Singh
[Umesh K. Gavaskar Memorial PhD Thesis Award](#), Department of Statistics (2016)
[Alan J. Perlis Graduate Student Teaching Award](#), School of Computer Science (2015)
[Mihaela Serban Memorial Research Award](#), American Stat. Assoc. Pitt. chapter (2015)
[Outstanding Representative Award](#), Graduate Student Assembly (2015)
[Graduate Teaching Assistant Award](#), Machine Learning Department (2014)
[Doug Beeferman PhD Fellowship](#), Machine Learning Department (2013)
[Future Faculty Program \(certification\)](#), Eberley Center for Teaching Excellence (2013-15)

2005–09 Bachelors in Computer Science and Engineering.
Indian Institute of Technology (IIT), Bombay (India) GPA 9.44/10
[Inlaks Full Scholarship Award \(3 years\)](#), for best all-round student in IIT Bombay
[IIT Bombay Cultural Citation](#), highest honor for cultural accomplishments over 4 years
[Prime Minister's invitee to Republic Day Parade](#), for academic excellence*
IIT Joint Entrance Exam India Rank 47/400,000, *Central Board Exams 97.4%, India Rank 10/300,000

Other positions

- 2019 Visiting researcher, Microsoft Research (6 weeks), *Montreal*.
- 2014 Visiting researcher, Gatsby Neuroscience Unit, UCL (6 weeks), *London*.
- 2012 Research intern, Microsoft Research (12 weeks), *Cambridge*.
- 2009–10 Algorithmic trader, Tower Research Capital (1 year), *Gurgaon & New York*.
- 2009 Quantitative analyst, Deutsche Bank (8 weeks), *Mumbai*.
- 2008 Research intern, INRIA (12 weeks), *Sophia-Antipolis*.
- 2007 Research intern, LaBRI, University of Bordeaux (12 weeks), *Bordeaux*.

Pre-prints and submissions

Part I: Core (one of the primary contributors)

- (arXiv) Online control of the false coverage rate and false sign rate.
A. Weinstein*, A. Ramdas*
- (arXiv) Classification accuracy as a proxy for two-sample testing.
I. Kim*, A. Ramdas*, A. Singh, L. Wasserman
- (arXiv) Sequential estimation of quantiles with applications to A/B-testing & bandits.
S. Howard, A. Ramdas
- (arXiv) Exponential line-crossing inequalities.
S. Howard, A. Ramdas, J. Sekhon, J. McAuliffe
- (arXiv) Uniform, nonparametric, nonasymptotic confidence sequences.
S. Howard, A. Ramdas, J. Sekhon, J. McAuliffe
- (arXiv) Path length bounds for gradient descent and flow.
C. Gupta, S. Balakrishnan, A. Ramdas
- (arXiv) On the bias, risk and consistency of sample means in multi-armed bandits.
J. Shin, A. Ramdas, A. Rinaldo
- (arXiv) Simultaneous high-prob. bounds on FDP in structured, regression & online settings.
E. Katsevich, A. Ramdas
- (arXiv) Asynchronous online testing of multiple hypotheses.
T. Zrnic, A. Ramdas, M. Jordan
- (arXiv) Interactive martingale tests for the global null.
B. Duan, A. Ramdas, S. Balakrishnan, L. Wasserman
- (pre) Interactive rank tests.
B. Duan, A. Ramdas, L. Wasserman
- (pre) Interactive control of the familywise error rate.
B. Duan, A. Ramdas, L. Wasserman

- (arXiv) STAR: Interactive multiple testing for structured FDR control.
L. Lei, A. Ramdas, W. Fithian
- (arXiv) Adaptivity & comp.-stat. tradeoffs for high-dimensional two-sample testing.
A. Ramdas, S. Reddi, B. Poczos, A. Singh, L. Wasserman
- (arXiv) Online control of the familywise error rate.
J. Tian, A. Ramdas
- (arXiv) Nested conformal prediction and the generalized jackknife+.
A. K. Kuchibhotla, A. Ramdas
- (pre) Best arm identification in transfer bandits: the linear setting.
O. Neopane, A. Singh, A. Ramdas

Part II: Collaborations (partial contributions)

- (arXiv) The power of batching in multiple hypothesis testing.
T. Zrnic, D. Jiang, A. Ramdas, M. Jordan
- (arXiv) The limits of distribution-free conditional predictive inference.
R. Barber, E. Candes, A. Ramdas, R. Tibshirani
- (arXiv) Predictive inference with the jackknife+.
R. Barber, E. Candes, A. Ramdas, R. Tibshirani

Published journal papers

Part I: Core (one of the primary contributors)

- 2019 A unified treatment of multiple testing with prior knowledge using the p-filter.
A. Ramdas, R. Barber, M. Wainwright, M. Jordan
The Annals of Statistics (AoS).
- 2019 Optimal rates and tradeoffs in multiple testing.
M. Rabinovich, A. Ramdas, M. Wainwright, M. Jordan
Statistica Sinica (SS).
- 2019 Function-specific mixing times and concentration away from equilibrium.
M. Rabinovich, A. Ramdas, M. Wainwright, M. Jordan
Bayesian Analysis (BA).
- 2019 DAGGER: a sequential algorithm for FDR control on DAGs.
A. Ramdas, J. Chen, M. Wainwright, M. Jordan
Biometrika.
- 2018 On kernel methods for covariates that are rankings.
H. Mania, A. Ramdas, M. Wainwright, M. Jordan, B. Recht
Electronic Journal of Statistics (EJS).
- 2018 The power of online thinning in reducing discrepancy.
R. Dwivedi, O. N. Feldheim, O. G. Gurevich, A. Ramdas
Probability Theory and Related Fields (PTRF).
- 2017 Iterative methods for solving factorized linear systems.
A. Ma, D. Needell, A. Ramdas
SIAM Journal on Matrix Analysis and Applications (SIMAX).

- 2017 Rows vs. columns: randomized Kaczmarz or Gauss-Seidel for ridge regression.
A. Hefny*, D. Needell*, A. Ramdas*
SIAM Journal on Scientific Computing (SISC).
- 2016 p-filter: multi-layer FDR control for grouped hypotheses.
R. Barber*, A. Ramdas*
Journal of the Royal Statistical Society, Series B (JRSSB).
- 2016 Wasserstein two-sample testing and related families of nonparametric tests.
A. Ramdas, N. Garcia, M. Cuturi
Entropy (Special Issue on Statistical Significance and the Logic of Hypothesis Testing).
- 2016 Fast & flexible ADMM algorithms for trend filtering.
A. Ramdas, R. Tibshirani
Journal of Computational and Graphical Statistics (JCGS).
- 2015 Convergence properties of the rand. extended Gauss-Seidel & Kaczmarz methods.
A. Ma*, D. Needell*, A. Ramdas*
SIAM Journal of Matrix Analysis and Applications (SIMAX).
- 2015 Towards a deeper geometric, analytic and algorithmic understanding of margins.
A. Ramdas, J. Peña
Optimization Methods and Software (OMS).
- 2015 Regularized brain reading with shrinkage and smoothing.
L. Wehbe, A. Ramdas, R. Steorts, C. Shalizi
Annals of Applied Statistics (AoAS).

Part II: Collaborations (partial contributions)

- 2019 Decoding from pooled data (I): sharp information-theoretic bounds.
A. El-Alaoui, A. Ramdas, F. Krzakala, L. Zdeborova, M. Jordan
SIAM Journal on the Mathematics of Data Science (SIMODS).
- 2019 Decoding from pooled data (II): phase transitions of message passing.
A. El-Alaoui, A. Ramdas, F. Krzakala, L. Zdeborova, M. Jordan
IEEE Transactions on Information Theory (TIT).
Shorter version published at IEEE Intl. Symposium on Information Theory (ISIT).
- 2014 Simultaneously uncovering patterns of brain regions involved in story reading.
L. Wehbe, B. Murphy, P. Talukdar, A. Fyshe, A. Ramdas, T. Mitchell
Public Library of Science ONE (PLoS ONE).

Full-length conference publications

Most AI and ML conferences have stringent, blind peer-review processes, and have acceptance rates in the range of 20-30%.

Part I: Core (one of the primary contributors)

- 2019 Are sample means in multi-armed bandits positively or negatively biased?.
J. Shin, A. Ramdas, A. Rinaldo
33rd Conference on Neural Information Processing Systems (NeurIPS). [spotlight \(top 2.5%\)](#)
- 2019 ADDIS: an adaptive discarding alg. for online FDR control with conservative nulls.
J. Tian, A. Ramdas
33rd Conference on Neural Information Processing Systems (NeurIPS).

- 2018 SAFFRON: an adaptive algorithm for online FDR control.
A. Ramdas, T. Zrnic, M. Wainwright, M. Jordan
35th International Conference on Machine Learning (ICML). [long oral \(top 1%\)](#)
- 2017 Online control of the false discovery rate with decaying memory.
A. Ramdas, F. Yang, M. Wainwright, M. Jordan
31st Conference on Neural Information Processing Systems (NeurIPS). [long oral \(top 1%\)](#)
- 2017 MAB-FDR: Multi (A)rmed/(B)andit testing with online FDR control.
F. Yang, A. Ramdas, K. Jamieson, M. Wainwright
31st Conference on Neural Information Processing Systems (NeurIPS). [spotlight \(top 2.5%\)](#)
- 2017 QuTE: decentralized multiple testing on sensor networks with FDR control.
A. Ramdas, J. Chen, M. Wainwright, M. Jordan
IEEE Conference on Decision and Control (CDC).
- 2016 Sequential nonparametric testing using the law of the iterated logarithm.
A. Balsubramani*, A. Ramdas*
32nd Conference on Uncertainty in Artificial Intelligence (UAI).
- 2016 Minimax lower Bounds for linear independence testing.
D. Isenberg*, A. Ramdas*, A. Singh, L. Wasserman
IEEE International Symposium on Information Theory (ISIT).
- 2016 Asymptotic behavior of ℓ_q -based Laplacian regularization in semi-supervised learning.
A. El-Alaoui, X. Cheng, A. Ramdas, M. Wainwright, M. Jordan
29th International Conference on Learning Theory (COLT).
- 2015 High-dimensional power of linear-time two-sample tests for mean-shift alternatives.
S. Reddi*, A. Ramdas*, B. Poczos, A. Singh, L. Wasserman
18th International Conference on AI & Statistics (AISTATS).
- 2015 On the decreasing power of kernel- & distance-based hyp. tests in high dimensions.
A. Ramdas*, S. Reddi*, B. Poczos, A. Singh, L. Wasserman
29th AAAI Conference on Artificial Intelligence (AAAI).
- 2015 Nonparametric independence testing for small sample sizes.
A. Ramdas*, L. Wehbe*
24th International Joint Conference on Artificial Intelligence (IJCAI).
- 2014 Margins, kernels and non-linear smoothed perceptrons.
A. Ramdas, J. Peña
31st International Conference on Machine Learning (ICML).
- 2014 An analysis of active learning with uniform feature noise.
A. Ramdas, B. Poczos, A. Singh, L. Wasserman
17th International Conference on AI & Statistics (AISTATS). [long oral \(top 2.5%\)](#)
- 2013 Optimal rates for stochastic convex optimization under Tsybakov noise condition.
A. Ramdas, A. Singh
30th International Conference on Machine Learning (ICML).
- 2013 Algorithmic connections between active learning & stochastic convex optimization.
A. Ramdas, A. Singh
24th International Conference on Algorithmic Learning Theory (ALT).

Part II: Collaborations (partial contributions)

- 2019 Conformal prediction under covariate shift.
R. Tibshirani, R. Barber, E. Candes, A. Ramdas
33rd Conference on Neural Information Processing Systems (NeurIPS).
- 2019 A higher order Kolmogorov-Smirnov test.
V. Sadhanala, Y. Wang, A. Ramdas, R. Tibshirani
22nd International Conference on AI and Statistics (AISTATS). [long oral \(top 2.5%\)](#)
- 2017 Generative models and model criticism via optimized Maximum Mean Discrepancy.
D. Sutherland, H. Tung, H. Strathmann, S. De, A. Ramdas, A. Smola, A. Gretton
5th International Conference on Learning Representations (ICLR).
- 2015 Fast two-sample testing with analytic representations of probability measures.
K. Chwialkowski, A. Ramdas, D. Sejdinovic, A. Gretton
29th Conference on Neural Information Processing Systems (NeurIPS).

Miscellaneous articles

- 2019 Discussion of “Covariate-assisted ranking and screening for two-sample inference”.
A. Ramdas
Journal of the Royal Statistical Society, Series B (JRSSB).
- 2015 Computational and Statistical Advances in Testing and Learning.
A. Ramdas
Carnegie Mellon University (PhD Thesis). [Umesh K. Gavaskar Memorial Thesis Award](#)
- 2011 Algorithms for graph similarity and subgraph matching.
D. Koutra, A. Parikh, A. Ramdas, J. Xiang
Carnegie Mellon University (technical report).
- 2009 Termination of single-loop linear programs.
A. Ramdas
IIT Bombay (UG Thesis).

Presentations

University Seminars

- 2019 Uniform, nonasymptotic, nonparametric confidence sequences (Columbia, Prob.)
Bias, risk and consistency of sample means in multi-armed bandits (Rice, ECE)
Uniform, nonasymptotic, nonparametric confidence sequences (McGill, Stat.)
Exponential line-crossing inequalities (MIT, IDSS)
Bias, risk and consistency of sample means in multi-armed bandits (Berkeley, EE)
Quantiles for bandits and RL (Mila, CS)
Doubly-sequential experimentation (IU, Psych)
- 2018 Sequential estimation of coin bias and nonparametric generalizations (Oxford, CSML)
A new framework for large-scale sequential A/B testing (IIT Delhi, CS)
Interactive algorithms for multiple hypothesis testing (USC, Marshall)
Exponential line-crossing inequalities (USC, Math)
Uniform, nonasymptotic, nonparametric confidence sequences (Bocconi Milan, DS)
Interactive algorithms for multiple hypothesis testing (UCSD, Math)
Interactive algorithms for multiple hypothesis testing (UC Davis, Stat.)

- Interactive algorithms for multiple hypothesis testing (UIUC, Stat.)
- Interactive algorithms for multiple hypothesis testing (GaTech, ISyE)
- From stopping times to *spotting* times in multiple testing (Stanford, Stat.)
- Towards “simultaneous selective inference” (Berkeley, Stat.)
- From stopping times to *spotting* times in multiple testing (Princeton, ORFE)
- From stopping times to *spotting* times in multiple testing (Cambridge, Stat.)
- Towards “simultaneous selective inference” (UMich., Stat.)
- Interactive algorithms for multiple hypothesis testing (CMU, Stat.)
- Towards “simultaneous selective inference” (Wharton, Stat.)
- Towards “simultaneous selective inference” (EPFL, Math.)
- A new framework for large-scale sequential A/B testing (EPFL, CS)
- A new framework for large-scale sequential A/B testing (ETH Zurich, CS)
- Interactive algorithms for multiple hypothesis testing (Caltech, CMS)
- Interactive algorithms for multiple hypothesis testing (Duke, Stat.)
- A new framework for large-scale sequential A/B testing (UCL, Gatsby)
- Interactive algorithms for multiple hypothesis testing (Columbia, Stat.)
- Interactive algorithms for multiple hypothesis testing (UChicago, Stat.+Booth)
- Interactive algorithms for multiple hypothesis testing (UWash., Stat.)
- Interactive algorithms for multiple hypothesis testing (Harvard, Stat.)
- Interactive algorithms for multiple hypothesis testing (Yale, Stat.)
- Interactive algorithms for multiple hypothesis testing (Cornell, Stat.)
- A new framework for large-scale sequential A/B testing (UIUC, CS)
- A new framework for large-scale sequential A/B testing (Columbia, CS)
- 2017 DAGGER: A sequential algorithm for FDR control on DAGs (Stanford, Biostat.)
- DAGGER: A sequential algorithm for FDR control on DAGs (UCB, Biostat. seminar)
- STAR: Interactive multiple testing for structured FDR control (Temple Univ., Stat.)
- STAR: Interactive multiple testing for structured FDR control (UTSW, Biomed.)
- Is reproducibility a problem in the tech industry? (UCB, BAIR seminar)
- Multi (A)rmmed/(B)andit testing with online FDR control (UTSW, Biomed.)
- Multi (A)rmmed/(B)andit testing with online FDR control (CMU, ML/AI)
- Multi (A)rmmed/(B)andit testing with online FDR control (Stanford, MS&E)
- Multi (A)rmmed/(B)andit testing with online FDR control (UT Austin, ECE)
- QuTE: Decentralized FDR control on sensor networks (UCB, BLISS seminar)
- 2016 False Discovery Rate - a tutorial and new directions (IIT Bombay, EE)
- p-Filter: FDR control for grouped hypotheses (Wharton, Stat.)
- p-Filter: FDR control for grouped hypotheses (Stanford, Stat.)
- p-Filter: FDR control for grouped hypotheses (UC Davis, Stat.)
- Asymptotics of Laplacian regularization in semi-supervised learning (CMU, ML)
- 2015 Adaptivity in high-dimensional two sample testing (UC Berkeley, CS)
- 2014 Adaptivity in high-dimensional two sample testing (Kyoto University, Stat.)
- Adaptivity in high-dimensional two sample testing (ISM Tachikawa, Stat.)
- Fast & flexible algorithms for trend filtering (Gatsby, Neuro.)
- 2013 Connecting active learning and stochastic optimization (CMI Chennai, Math.)
- Connecting active learning and stochastic optimization (IIT Madras, CS)

Industry Research Labs

- 2019 A framework for asynchronous large-scale sequential testing (Two Sigma, NY)
A framework for asynchronous large-scale sequential testing (MSR, Montreal)
Sequential estimation of quantiles for A/B testing and bandits (MSR, Redmond)
Are bandit sample means positively or negatively biased? (Google, Pittsburgh)
- 2018 A new framework for large-scale sequential A/B testing (MSR, New England)
- 2017 Is reproducibility a problem in the tech industry? (Uber Research, SF)
Is reproducibility a problem in the tech industry? (AirBnB Research, SF)
- 2016 Sequential and multiple testing in modern ML (Groupon Research, Palo Alto)
p-Filter: FDR control for grouped hypotheses (Lawrence National Labs, Livermore)
Multiple testing issues in industry (AmpLab industry retreat)
- 2015 Sequential nonparametric testing (Alibaba Research, Seattle)
Sequential nonparametric testing (Google Research, Pittsburgh)
- 2014 Fast & flexible algorithms for trend filtering (MSR, Cambridge)
- 2013 Active learning & stochastic optimization (IBM Research, Bangalore)
- 2012 Connecting statistical & logical inference (Microsoft Research, Cambridge)

Conference and Workshop Talks

- 2020 A gentle introduction to conformal prediction (TIFR)
- 2019 Interactive FDR control with a human-in-the-loop (ISI-YSM)
Theoretical guarantees for doubly sequential experimentation (UCSD Data Science)
A unified framework for martingale concentration inequalities (ITA)
Online control of the false coverage rate (WHOA-PSI4)
The state-of-the-art in online multiple testing (MCP)
Simultaneous inference in sequential analysis (ICSA)
A tutorial on conformal prediction (IPAM)
Are sample means in multi-armed bandits positively or negatively biased? (Asilomar)
- 2018 Towards “simultaneous selective inference” (WHOA-PSI3)
Towards “simultaneous selective inference” (CMStat)
SAFFRON: an adaptive algorithm for online FDR control (ICML)
Towards “simultaneous selective inference” (CiMi)
Uniform nonasymptotic confidence sequences for sequential estimation (INI)
- 2017 On kernel methods for covariates that are rankings (CNA)
Online FDR control with decaying memory (NeurIPS)
QuTE: decentralized multiple testing on sensor networks with FDR control (CDC)
A unified treatment of multiple testing with prior knowledge (MCP)
Optimal rates and tradeoffs in multiple testing (MCP)
Optimal rates and tradeoffs in multiple testing (ICSA)
Sequential nonparametric testing using the law of the iterated logarithm (ITA)
The power of online thinning in reducing discrepancy (MCM)
The power of online thinning in reducing discrepancy (IISA)
STAR: Interactive multiple testing for structured FDR control (WHOA-PSI2)
- 2016 A unified framework for multiple testing with prior knowledge (NeurIPS WADAPT)
Sequential nonparametric testing using the law of the iterated logarithm (Lorentz)
Function-specific mixing times and concentration away from equilibrium (MCQMC)
Minimax bounds for linear independence testing (ISIT)

- Function-specific mixing times and concentration away from equilibrium (ISBA)
- Beyond worst-case mixing times for markov chains (ITA)
- 2015 Nonparametric independence testing for small sample sizes (IJCAI)
- Adaptivity in high-dimensional two-sample testing (JSM)
- Sequential nonparametric testing using the law of the iterated logarithm (IWSM)
- 2014 Margins, kernels and nonlinear smoothed perceptrons (ICML)
- Active learning with uniform feature noise (AISTATS)
- 2013 Connecting convex optimization and active learning (NeurIPS OPT)
- Algorithmic connections between convex optimization and active learning (ALT)
- Optimal convex optimization under Tsybakov noise condition (ICML)

Teaching

- 2019 [KDD tutorial](#), *Foundations of large-scale sequential experimentation (solo, 4hrs)*.

Courses taught

- 2018 (F) Martingales: concentration inequalities and sequential analysis (PhD), *Instructor*.
- 2019 (S) Introduction to Machine Learning (PhD), *Co-instructor, with Leila Wehbe*.
- 2019 (F) (Some) Statistical methods for reproducibility (PhD), *Instructor*.
- 2020 (S) The ABCDE of Statistical Methods in Machine Learning (PhD), *Instructor*.

Outreach (Schools)

- 2019 Introduction to ML (40 mins, grade twelve, Vidya Mandir Mylapore, Chennai)
- 2017 Introduction to AI (40 mins, grade eleven, Vidya Mandir Mylapore, Chennai)
- Trash-free Living (60 mins, full school, Paathashaala, Chennai)
- 2016 Robots that run (60 mins, grade three, Stege Elementary, Richmond)
- 2015 SVD, Random Graphs and Random Walks (90x3 mins, high school, PACT, Princeton)
- Introduction to CS (90x2 mins, middle school girls, Technights, CMU)
- Introduction to ML (30x2 mins, high school, Indian School Al-Ghubra, Muscat)
- 2014 Mechanism Design: Auctions & Voting (80 mins, high school, Andrew's Leap, CMU)
- 2013 Multi-armed Bandits (80 mins, high school, Andrew's Leap, CMU)

Future Faculty Program

- Completed program by CMU's Eberly Center for Teaching Excellence (transcript available).
- 2014-15 Seminars: Course & syllabus design, Promoting peer learning, Planning & delivering effective lectures, Leveraging diversity & promoting equity, Conducting productive discussions, Engaging students in active learning, Good assessment practices
- 2014 Observations & projects: Classroom teaching, Microteaching workshop, Designed syllabus of UG course Math. Foundations of ML, Pedagogical aspects of learning through videos

Grants

- 2020-24 NSF CAREER Award. "Online multiple hypothesis testing: a comprehensive treatment". Sole PI. \$400,000 over 5 years (recommended for award 11/15/2019).
- 2019-20 Adobe Faculty Research Award. \$50,000 gift. Sole PI.
- 2019-21 Berkman Faculty Fellowship. \$5000 over two years. Sole PI.
- 2019-22 NSF DMS Small. "Nonparametric confidence sequences and their applications". Sole PI. \$160,000 over 3 years (awarded 7/30/2019).

Mentorship at CMU

Postdoctoral researchers

- StatDS Asaf Weinstein (2018-19) (joint with Matan Gavish @ HUJI)
StatDS Eugene Katsevich (2019-20) (joint with Kathryn Roeder)

PhD student advisees

- StatDS JaeHyeok Shin (joint with Alessandro Rinaldo),
Thesis: Statistical aspects of the sample mean in multi-armed bandits.
StatDS Jinjin Tian (joint with Kathryn Roeder)
StatDS Boyan Duan (joint with Larry Wasserman),
Thesis: Advances in interactive testing.
ML Chirag Gupta
ML Ojash Neopane (joint with Aarti Singh)

PhD Thesis Committees

- StatDS Ilmun Kim (2018)
ChemE Kevin Tran (2018)

PhD Rotations

- Stat/Neuro Shenghao Wu (2018) (joint with Leila Wehbe)

PhD Advanced Data Analysis Projects

- StatDS Ian Waudby-Smith (2020)
StatDS Nil-jana Akpınar (2019) (joint with Umut Acar, Anil Ada)

Service

Organization: full- or multi-day workshops and conferences

- 2020 5-day Workshop on safe-testing (EuRandom, Eindhoven), *Organizer.*
+ Peter Grunwald.
2020 2-day Workshop on statistical learning theory (TIFR, Mumbai), *Organizer.*
+ Sandeep Juneja, Devavrat Shah.
2018-20 3-week working group on conformal prediction (AIM Square), *Organizer.*
+ Ryan Tibshirani, Rina Barber, Emmanuel Candes.
2017 3-day 20th Conference on AI & Statistics (AISTATS), *Publicity Chair.*
Program Chairs: Aarti Singh, Jerry Zhu.
2016 1-day Workshop on Adaptive Data Analysis (NeurIPS), *Organizer.*
+ Adam Smith, Aaron Roth, Vitaly Feldman.
2016 1-day Workshop on Modern Nonparametrics (NeurIPS), *Organizer.*
+ Zoltan Szabo, Han Liu, Mladen Kolar, Samory Kpotufe, Bharath Sriperumbudur, John Lafferty.
2015 1-day Workshop on Active Learning: Theory & Practice (ICML), *Organizer.*
+ Akshay Krishnamurthy, Aarti Singh, Nina Balcan.
2014 1-day Workshop on Optimization in Machine Learning (NeurIPS), *Organizer.*
+ Alekh Agarwal, Suvrit Sra, Miro Dudik, Zaid Harchaoui, Martin Jaggi.

Organization: individual sessions at meetings

- 2020 Invited session: conformal prediction (Stat. Learning and Data Sci.), *Organizer.*
2020 Invited session: reproducibility (Stat. Learning and Data Sci.), *Organizer.*
2019 Invited session: sequential analysis (Asilomar), *Organizer.*

Senior Program Committee, Area Chair

- 2020 37th International Conference on Machine Learning (ICML).
- 2020 31st International Conference on Algorithmic Learning Theory (ALT).
- 2020 36th Conference on Uncertainty in Artificial Intelligence (UAI).
- 2019 33rd Conference on Neural Information Processing Systems (NeurIPS).
- 2019 22nd Conference on AI & Statistics (AISTATS).
- 2019 36th International Conference on Machine Learning (ICML).
- 2019 32nd Annual Conference on Learning Theory (COLT).

Book Reviewer

- Stat Cambridge University Press
- ML Foundations and Trends in Machine Learning

Journal Reviewer

- Stat Annals of Statistics, Journal of the Royal Statistical Society Series B (JRSSB), Biometrika, Bernoulli, Statistics and Probability Letters, Annals of Applied Statistics, Journal of the American Statistical Association, Statistica Sinica, Statistical Science, Scandanavian Journal of Statistics, Electronic Journal of Statistics, Annals of the Institute of Statistical Mathematics.
- ML/AI Journal of Machine Learning Research, Machine Learning Journal, Journal of Artificial Intelligence Research, Data Mining and Knowledge Discovery.
- EE IEEE Transactions on Information Theory, IEEE Signal Processing Letters, IEEE Transactions on Pattern Analysis and Machine Intelligence.
- Opt. BIT Numerical Algorithms, Optimization Methods and Software, Numerical Mathematics, SIAM Journal on Matrix Analysis.
- Other Bioinformatics, Discrete and Computational Geometry, Entropy.

Conference Reviewer

- ML Conference on Learning Theory (COLT), Conference on AI & Statistics (AISTATS), International Conference on Machine Learning (ICML), Neural Information Processing Systems (NeurIPS), European Conference on Machine Learning (ECML).
- EE International Symposium on Information Theory (ISIT).
- AI Conference on Artificial Intelligence (AAAI), Conference on Uncertainty in Artificial Intelligence (UAI), International Joint Conference on Artificial Intelligence (IJCAI).

Department Service

- 2019- MLD speaking skills committee
- 2019- Social host (Stats+MLD)
- 2018- Miscellaneous: StatDS+MLD wellness network (2018+), judge in Meeting of the Minds (2019), first day StatDS retreat organizer (2018), StatDS strategic planning.
- 2018- Statistics department seminar organizer (CMU)
- 2015-16 Graduate admissions committee, CS Department (UCB)
- 2014 Lead Organizer, ML Department Student Research Symposium (CMU)
- 2012-15 Organizer, weekly lunch seminar series on ML (CMU)
- 2014-15 Teaching Faculty Hiring Committee, ML Department (CMU)
- 2014-15 Graduate Student Assembly Rep. (CMU), [Outstanding Representative Award](#)
- 2013-14 Graduate Admissions Committee, ML Department (CMU)
- 2013-14 Education Review Committee Founder, ML Department (CMU)

- 2008-09 Industry Job Placement Coordinator, CS Department (IITB)
- 2007-08 Sports Coordinator, CS Department (IITB)

University Service

- 2015-17 Steward for Postdoctoral Union (UCB)
- 2014-15 SafeZone Allies for LGBTQ Safety, Trained Member (CMU)
- 2014-15 Campus Smoking Policy Review Committee, Member (CMU)
- 2012-13 Explorer's Club Core Officer (CMU)
- 2011-12 Indian Graduate Students Association Treasurer (CMU)
- 2008-09 Campus Radio Cofounder (IITB)
- 2008-09 Job Fair Placement Representative, CS Department (IITB)
- 2007-08 Google Campus Ambassador (IITB)
- 2007-08 Institute Secretary for Academic Affairs (IITB)
- 2007-08 Sports Secretary, CS Department (IITB)
- 2006-07 Sports Secretary, Hostel 3 (IITB)

Distractions

2012-now **Endurance Sports.**

Finishing medalist of the Ironman triathlon (2.4mi swim, 112mi bike, 26.2mi run) at Louisville, Kentucky (Aug 25, '13). Also completed a half-ironman in Grafham, and olympic triathlons in Marlow ('12), Pittsburgh ('13), Tahoe ('16). Finished marathons in Columbus ('12) and Pittsburgh ('12, '13, '14), and half-marathons in Wales ('12), Philadelphia ('13), Chicago ('13), Ealing ('14), Berkeley ('15), Napa ('17).

2001-12 **Team Sports.**

Represented the Oman cricket team in the U-13 Gulf Cup (silver medal), and in the U-15 Asia Cup (ranked 5/14). Also played several years for the IIT Bombay Inter-IIT (silver medal) and Carnegie Mellon cricket teams. Awarded several Hostel-3 Sports Colors for winning top-3 spots in table-tennis, badminton, cricket, basketball and water-polo, and for representing in hockey, football, cross-country, kho-kho.

2006-now **Adventure Sports.**

Finished a 26-day Basic Mountaineering Course in the Himalayas (Jul 1-26, '06), a 10-day backpacking school ('13) and 15-day climbing school by the Explorer's Club of Pittsburgh ('15). Also completed a 7-day PADI scuba openwater diving course ('11), and a 2-day Advanced Free Fall Skydiving course ('10), and a 2-day wilderness first aid course ('12).

2001-now **Community Service.**

Raised funds in '18 for organizations fighting AIDS and empowering women in Zambia (340 mile bike ride from Lusaka to Livingstone). Fundraising in '16 and '17 for the San Francisco AIDS Foundation and the Los Angeles LGBT Center (545 mile bike ride in California from SF to LA, also training ride leader in '17). Also fundraised for the National Multiple Sclerosis Society (150 mile bike ride in Pennsylvania, '13) and the Pittsburgh Animal Rescue League and Wildlife Center (Pittsburgh marathon, '12). Regular volunteer for beach cleaning and daily school traffic warden for 3 years (2001-03).

References

In case you would like to know more about me, I have requested and obtained reference letters from the following researchers at different points in the recent past: Larry Wasserman, Michael Jordan, Aarti Singh, Martin Wainwright, Chris Genovese, Lester Mackey, Abba Krieger, Ryan Tibshirani, Jelle Goeman, Yoav Benjamini, Daniel Yekutieli. Other researchers, from whom I have not obtained formal references but may be willing to provide information about my research or personality, include Rob Tibshirani, Rina Barber, Emmanuel Candès, Alessandro Rinaldo, Geoff Gordon, Jon McAuliffe, Arthur Gretton, Jas Sekhon, Chiara Sabatti, Peter Orbanz, Alex Smola and Jennifer Chayes.