

# Aaditya K. Ramdas

## Curriculum Vitae

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📁 [stat.cmu.edu/~aramdas](http://stat.cmu.edu/~aramdas)



### Research Interests

My research spans theory, algorithms and applications in machine learning and statistical inference. Some recent work focuses on the theme of reproducibility in science and technology by designing procedures for controlling false discoveries in novel static and dynamic settings (multiple hypothesis testing, selective inference). Another line of work involves active sequential experimentation by creating algorithms for online or streaming data settings (interactive testing, multi-armed bandits).

### Current Position

2018–? Assistant Professor, Statistics and Data Science (+affl. Machine Learning).  
**Carnegie Mellon University (CMU)**, Pittsburgh (USA)

### Academic Background

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

2010–15 PhD in Statistics and Machine Learning, +MS in Machine Learning: GPA 4.2 / 4.  
**Carnegie Mellon University (CMU)**, Pittsburgh (USA)  
Advisors: Larry Wasserman & Aarti Singh

[Umesh K. Gavaskar Memorial Best PhD Thesis\\* Award](#), Department of Statistics (2016)  
[Alan J. Perlis Graduate Student Teaching Award](#), School of Computer Science (2015)  
[Mihaela Serban Memorial Research Award](#), Am. Stat. Assoc. Pittsburgh chapter (2015)  
[Outstanding Representative Award](#), Graduate Student Assembly (2015)  
[Best Teaching Assistant Award](#), Machine Learning Department (2014)  
[Doug Beeferman PhD Fellowship Award](#), Machine Learning Department (2013)

PhD Thesis\*: Computational and Statistical Advances in Testing and Learning  
MS Data Analysis: Statistical Modeling of Burglaries in Pittsburgh

2005–09 Bachelors in Computer Science and Engineering.  
**Indian Institute of Technology (IIT)**, Bombay (India)

[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\*

GPA – 9.44 / 10, Institute Rank 9 / 600, Department Rank 3 / 60  
IIT Joint Entrance Exam National Rank 47 / 400,000

\*CBSE Central Board Exams 97.4%, National Rank 10 / 300,000

### Work Experience

2009–10 Algorithmic Trader, **Tower Research Capital**, *Gurgaon (India) & New York (USA)*.  
Sum'14 Research Intern, **Gatsby Neuroscience Unit (UCL)**, *London (UK)*.  
Sum'12 Research Intern, **Microsoft Research (MSR)**, *Cambridge (UK)*.  
Sum'09 Quantitative Analyst, **Deutsche Bank**, *Mumbai (India)*.  
Sum'08 Research Intern, **INRIA**, *Sophia-Antipolis (France)*.  
Sum'07 Research Intern, **LaBRI**, *Bordeaux (France)*.

## Pre-prints and submissions

- (sub.) STAR: Interactive multiple testing for structured FDR control.  
L. Lei, A. Ramdas, W. Fithian  
(Arxiv preprint)
- (pre.) Exponential line-crossing inequalities.  
S. Howard, A. Ramdas, J. Sekhon, J. McAuliffe  
(Arxiv preprint)
- (pre.) Uniform, nonasymptotic, nonparametric confidence sequences.  
S. Howard, A. Ramdas, J. Sekhon, J. McAuliffe  
(Arxiv preprint)
- (sub.) Decoding from pooled data (I): sharp information-theoretic bounds.  
A. El-Alaoui, A. Ramdas, F. Krzakala, L. Zdeborova, M. Jordan  
(Arxiv preprint)
- (sub.) Function-specific mixing times and concentration away from equilibrium.  
M. Rabinovich, A. Ramdas, M. Wainwright, M. Jordan  
(Arxiv preprint)
- (pre.) Classification accuracy as a proxy for two-sample testing.  
A. Ramdas, A. Singh, L. Wasserman  
(Arxiv preprint)
- (pre.) Adaptivity & comp.-stat. tradeoffs for high-dimensional two-sample testing.  
A. Ramdas, S. Reddi, B. Poczos, A. Singh, L. Wasserman  
(Arxiv preprint)
- (sub.) Towards “simultaneous selective inference”: post-hoc bounds on the FDP.  
E. Katsevich, A. Ramdas  
(Arxiv preprint)
- (pre.) Asynchronous online FDR control under Markov dependence.  
T. Zrnic, A. Ramdas, M. Jordan  
(in preparation)
- (pre.) A higher order Kolmogorov Smirnov Test.  
V. Sadhanala, A. Ramdas, Y. Wang, R. Tibshirani  
(in preparation)

## Published journal articles

- 2018 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).
- 2018 Optimal rates and tradeoffs in multiple testing.  
M. Rabinovich, A. Ramdas, M. Wainwright, M. Jordan  
Statistica Sinica (SS).
- 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).

- 2018 DAGGER: a sequential algorithm for FDR control on DAGs.  
A. Ramdas, J. Chen, M. Wainwright, M. Jordan  
Biometrika.
- 2018 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).
- 2018 On kernel methods for covariates that are rankings.  
H. Mania, A. Ramdas, M. Wainwright, M. Jordan, B. Recht  
Electronic Journal of Statistics (EJS).
- 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).
- 2015 Fast & flexible ADMM algorithms for trend filtering.  
A. Ramdas, R. Tibshirani  
Journal of Computational and Graphical Statistics (JCGS).
- 2015 Regularized brain reading with shrinkage and smoothing.  
L. Wehbe, A. Ramdas, R. Steorts, C. Shalizi  
Annals of Applied Statistics (AoAS).
- 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).
- 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%.

- 2018 SAFFRON: an adaptive algorithm for online FDR control.  
A. Ramdas, T. Zrnic, M. Wainwright, M. Jordan  
35th Intl. Conf. on Machine Learning (ICML). [long oral](#)

- 2017 Online control of the false discovery rate with decaying memory.  
A. Ramdas, F. Yang, M. Wainwright, M. Jordan  
31st Conf. on Advances in Neural Information Processing Systems (NIPS). [long oral](#)
- 2017 MAB-FDR: Multi (A)rmed/(B)andit testing with online FDR control.  
F. Yang, A. Ramdas, K. Jamieson, M. Wainwright  
31st Conf. on Advances in Neural Information Processing Systems (NIPS). [spotlight](#)
- 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). [talk](#)
- 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).
- 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 Intl. Symposium on Information Theory (ISIT). [talk](#)
- 2016 Asymptotic behavior of  $\ell_q$ -based Laplacian regularization in semi-supervised learning.  
A. El-Alaoui, X. Cheng, A. Ramdas, M. Wainwright, M. Jordan  
29th Intl. Conference on Learning Theory (COLT).
- 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 (NIPS).
- 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 Intl. Conference on Artificial Intelligence & 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 Intl. Joint Conference on Artificial Intelligence (IJCAI). [talk](#)
- 2014 Margins, kernels and non-linear smoothed perceptrons.  
A. Ramdas, J. Peña  
31st International Conference on Machine Learning (ICML). [talk](#)
- 2014 An analysis of active learning with uniform feature noise.  
A. Ramdas, B. Poczos, A. Singh, L. Wasserman  
17th Intl. Conference on Artificial Intelligence & Statistics (AISTATS). [long oral](#)
- 2013 Optimal rates for stochastic convex optimization under Tsybakov noise condition.  
A. Ramdas, A. Singh  
30th International Conference on Machine Learning (ICML). [talk](#)
- 2013 Algorithmic connections between active learning & stochastic convex optimization.  
A. Ramdas, A. Singh  
24th International Conference on Algorithmic Learning Theory (ALT). [talk](#)

## Presentations

### Invited University Seminars

- 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)
- Job talks 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)rmadillo/(B)andit testing with online FDR control (UTSW, Biomed.)  
Multi (A)rmadillo/(B)andit testing with online FDR control (CMU, ML/AI)  
Multi (A)rmadillo/(B)andit testing with online FDR control (Stanford, MS&E)  
Multi (A)rmadillo/(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)

### Invited Industry Talks

- 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 Talks

- 2019 Asynchronous online FDR control (ISI-YSM)
- 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 (NIPS)
- 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 (NIPS 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 (NIPS OPT)  
Algorithmic connections between convex optimization and active learning (ALT)  
Optimal convex optimization under Tsybakov noise condition (ICML)

## Teaching

- 2015 [Alan J. Perlis Graduate Student Teaching Award](#), awarded to one student per year in the School of Computer Science, CMU.
- 2014 [Graduate Student Teaching Award](#), awarded to one student per year in the Machine Learning Department, CMU.

### Courses taught

- 2018 Martingales: concentration inequalities and sequential analysis, *Instructor*, two minis in one semester.

### Outreach (Schools)

- 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

## Service

### Organization

- 2018 Mini-workshop on selective inference (AIM Square), *Organizer*.  
+Ryan Tibshirani, Rina Barber, Emmanuel Candes.
- 2017 20th Conference on AI & Statistics (AISTATS), *Publicity Chair*.  
Program Chairs: Aarti Singh, Jerry Zhu.
- 2016 Workshop on Adaptive Data Analysis (NIPS), *Organizer*.  
+ Adam Smith, Aaron Roth, Vitaly Feldman.
- 2016 Workshop on Modern Nonparametrics (NIPS), *Organizer*.  
+ Zoltan Szabo, Han Liu, Mladen Kolar, Samory Kpotufe, Bharath Sriperumbudur, John Lafferty.
- 2015 Workshop on Active Learning: Theory & Practice (ICML), *Organizer*.  
+ Akshay Krishnamurthy, Aarti Singh, Nina Balcan.
- 2014 Workshop on Optimization in Machine Learning (NIPS), *Organizer*.  
+ Alekh Agarwal, Suvrit Sra, Miro Dudik, Zaid Harchaoui, Martin Jaggi.

## Thesis Committees

Stat Ilmun Kim  
Chem Kevin Tran

## PC/SPC

2019 22nd Conference on AI & Statistics (AISTATS), *Senior program committee member.*  
2019 36th Intl. Conference on Machine Learning (ICML), *Program committee member.*  
2019 32nd Annual Conference on Learning Theory (COLT), *Program committee member.*

## Book Reviewing

Stat Cambridge University Press  
ML Foundations and Trends in Machine Learning

## Journal Reviewing

Stat Annals of Statistics (AoS), Journal of the Royal Statistical Society Series B (JRSSB),  
Biometrika, Bernoulli, Statistics and Probability Letters, Annals of Applied Statistics  
(AoAS), Journal of the American Statistical Association (JASA), Statistica Sinica,  
Statistical Science.  
ML/AI Journal of Machine Learning Research (JMLR), Machine Learning Journal (MLJ),  
Journal of Artificial Intelligence Research (JAIR), Data Mining and Knowledge  
Discovery (DAMI).  
EE Transactions on Information Theory (IEEE-TIT), Signal Processing Letters (IEEE-  
SPL), Transactions on Pattern Analysis and Machine Intelligence (IEEE-TPAMI).  
Opt. Numerical Algorithms (BIT-NA), Optimization Methods and Software (OMS),  
Numerical Mathematics.  
Other Bioinformatics, Entropy.

## Conference Reviewing

ML Conference on Learning Theory (COLT), Conference on AI & Statistics (AISTATS),  
International Conference on Machine Learning (ICML), Neural Information Process-  
ing Systems (NIPS), 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

2018 Statistics strategic planning committee (CMU)  
2018 Statistics first day retreat organizer (CMU)  
2018-19 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)

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## 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).

### 2001-03 **Duke of Edinburgh Award.**

Awarded the International Award for Young People (bronze and silver) under the Duke of Edinburgh Award Scheme, for social service, skill development, physical training and adventurous expeditions.

### 2005-09 **Cultural Activities.**

Was awarded IIT-B institute cultural citation (5 out of 1000 graduating students) for winning over 20 intercollegiate competitions in speaking, quizzing, literature and debate, and awarded several Hostel-3 Cultural Colors for excellence in similar interhostel events.