

Kinjal Basu

CONTACT 700 E Middlefield Rd,
INFORMATION Building 2,
Mountain View, CA 94043

E-mail: kbasu@linkedin.com
Webpage: <http://www.kinjalbasu.com>

RESEARCH Statistical Sampling Theory, Quasi-Monte Carlo Methods, Machine Learning, Large-Scale
INTERESTS Optimization, Bayesian Optimization, Discrepancy Theory.

EMPLOYMENT

- **Staff Applied Researcher, Flagship Relevance and AI, LinkedIn.** *Mountain View, CA.* October 2018- present.

Working on several challenging problems in the intersection of statistics, machine learning and large-scale optimization.

- **Senior Applied Researcher, Growth and Ecosystem Relevance, LinkedIn.** *Mountain View, CA.* June 2017- September 2018.

Working on large-scale optimization problems with focus on global Bayesian optimization and constrained portfolio selection.

- **Applied Researcher, Growth and Ecosystem Relevance, LinkedIn.** *Mountain View, CA.* July 2016- June 2017.

Worked on predictive modeling, statistical learning, recommendation systems and large-scale optimization problems.

- **Research Intern, LinkedIn.** *Mountain View, CA.* Summer 2014, 2015.

Worked on variance reduction techniques for large-scale optimization (2015) and topic models for article recommendations (2014).

- **Financial Research Intern, Deutsche Bank, Global Capital Markets, Mumbai, India.** *Summer 2011*

Worked on dependency structure of six major global markets for optimal price prediction.

- **Research Intern, Johns Hopkins University, Baltimore, MD.** *Summer 2010*

Worked to develop statistical genetic theory for predicting the behavior of DNA array used in detecting deletions in human genome samples.

EDUCATION

- **Doctor of Philosophy (Ph.D.), Statistics, Stanford University,** September 2012 - June 2016.

Thesis Title: Quasi-Monte Carlo methods in Non-Cubical Domains. ([Link](#))

Advisor: Prof. Art Owen.

Thesis Committee: Prof. Emmanuel Candés, Prof. Sourav Chatterjee, Prof. Persi Diaconis

- **Master of Science (M.S.), Statistics, Stanford University**
January 2016

- **Master of Statistics (M. Stat.), Indian Statistical Institute,**
May 2012

Specialization: Mathematical Statistics and Probability

Master’s Thesis: Spline Smoothing for Estimation of Circular Probability Distributions via Spectral Isomorphism and its Spatial Adaptation

Advisor: Prof. Debapriya Sengupta

- **Bachelor of Statistics (Hons.) (B. Stat.), Indian Statistical Institute,**
May 2010

PREPRINTS

1. **Basu, Kinjal** and Ghosh, S. (2018) “Analysis of Thompson Sampling for Gaussian Process Optimization in the Bandit Setting”. *In Submission*. [Link : \(arXiv: 1705.06808\)](#)
2. **Basu, Kinjal**, Walker, M., Yuan, Y., Jain, A., Raghavan, H., and Rosales, R. (2018) “Constrained Matching in a Two-Sided Marketplace at Scale”. *In Submission*

PUBLICATIONS

3. Agarwal, D. , **Basu, Kinjal**, Ghosh, S., Xuan, Y., Yang, Y. and Zhang, L. (2018) “Online Parameter Selection for Web-Based Ranking Problems”. *The 24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, August 19–23, 2018, London, United Kingdom. ACM, New York, NY, USA* ([Link](#))
4. He ,Y., **Basu, Kinjal**, Zhao, Q. and Owen, A. (2018) “Permutation p -value approximation via generalized Stolarsky invariance”. *The Annals of Statistics. To Appear.* [Link : \(arXiv: 1603.02757\)](#)
5. **Basu, Kinjal**, Saha, A. and Chaterjee, S. (2017) “Large-Scale Quadratically Constrained Quadratic Program via Low-Discrepancy Sequences”. *Advances in Neural Information Processing Systems (NIPS) 2017.* pp. 2294–2304. ([Link](#))
6. **Basu, Kinjal** and Owen, A. (2018) “Quasi-Monte Carlo for an Integrand with a Singularity along a Diagonal in the Square”. *Contemporary Computational Mathematics - A Celebration of the 80th Birthday of Ian Sloan, Springer.* pp. 119 - 130. ([Link](#))
7. **Basu, Kinjal** and Mukherjee, R. (2017) “Asymptotic normality of scrambled geometric net quadrature”. *The Annals of Statistics.* **45** (4) pp. 1759 - 1788. ([Link](#))
8. **Basu, Kinjal** and Owen, A. (2017) “Scrambled geometric net integration over general product spaces”. *Foundations of Computational Mathematics.* **17** (2) pp. 467 - 496 ([Link](#))

9. **Basu, Kinjal** and Owen, A. (2016) “Transformations and Hardy-Krause Variation”. *SIAM Journal of Numerical Analysis*. **54** (3) pp. 1946-1966. ([Link](#))
10. **Basu, Kinjal** (2015) “Quasi-Monte Carlo tractability of high dimensional integration over products of simplices”. *Journal of Complexity*. **31** (6) pp. 817 - 834. ([Link](#))
11. **Basu, Kinjal** and Owen, A. (2015) “Low discrepancy constructions in the triangle”. *SIAM Journal of Numerical Analysis* **53** (2) pp. 743 - 761. ([Link](#))
12. Basu, D., **Basu, Kinjal**, Bhattacharya, B. and Das, S. (2015) “Almost Empty Monochromatic Triangles in Planar Point Sets.” *Discrete Applied Mathematics*. **210** pp. 207-213. ([Link](#))
13. Samanta, D., Joshi, S., **Basu, Kinjal**, et. al (2014) “Receptor-Ligand Interaction at 5-HT₃ Serotonin Receptors: A Cluster Perspective”. *Journal of Physical Chemistry A*, **118** (37), pp. 8471-8476. ([Link](#))
14. Anis, M.Z. and **Basu, Kinjal** (2014). “Tests for exponentiality against NBUE alternatives: a Monte Carlo comparison”. *Journal of Statistical Computation and Simulation*. **84** (2) pp. 231-247. ([Link](#))
15. **Basu, Kinjal**, Nangia, R and Pal, U, (2012) “Recognition of similar shaped handwritten characters using Logistic Regression., das, pp. 200-204 *Proceedings of the 2012 10th. IAPR International Workshop on Document Analysis Systems*. ([Link](#))
16. Anis, M.Z. and **Basu, Kinjal**, (2011) “The exact null distribution of the generalized Hollander-Proschan type test for NBUE alternatives, *Statistics & Probability Letters*, **81** (11) pp. 1733-1737. ([Link](#))

MASTER’S THESIS

17. **Basu, Kinjal** and Sengupta, D. (2012) “A spatio-spectral hybridization for edge preservation and noisy image restoration via local parametric mixtures and Lagrangian relaxation”. ([Link : arXiv:1209.1826](#))
18. **Basu, Kinjal** and Sengupta, D. (2012) “Spline Smoothing for Estimation of Circular Probability Distributions via Spectral Isomorphism and its Spatial Adaptation” [Link: \(arXiv:1209.1740\)](#)

PATENTS

1. **Basu, Kinjal**, Chatterjee, S., Tu, Y., et. al. (2018) “Low Variance Estimation of Network Effects”. U.S. Patent Application, filed September, 2018. *Patent Pending*.
2. **Basu, Kinjal**, Daga, P., Walker, M., et. al. (2017) “Content Generation and Targeting”. U.S. Patent Application, filed November, 2017. *Patent Pending*.
3. **Basu, Kinjal**, Saha, A., Chatterjee, S. (2017). “Populating a user interface using quadratic constraints”. U.S. Patent Application, filed October, 2017. *Patent Pending*.
4. **Basu, Kinjal**, Ghosh, S., Xuan, Y., Zhang, L., Agarwal, D., and Yang, Y. (2017). “Calculation of Tuning Parameters for Ranking items in a User Feed.” U.S. Patent Application, filed September, 2017. *Patent Pending*.

5. **Basu, Kinjal**, Shreibati, S., Tiwana, B., et. al. (2017). “Techniques for presenting a Contextual Contact List”. U.S. Patent Application 15/663,492, filed July, 2017. *Patent Pending.*
6. **Basu, Kinjal**, Shreibati, S., Tiwana, B., et. al. (2017). “Contextual Contact Suggestions”. U.S. Patent Application 62/368,700, filed July, 2017. *Patent Pending.*
7. **Basu, Kinjal**, Kabdebom, V.L., Rosales, R.E., et. al. (2017). “Mentor and Mentee Matching using Social Networking Data”. U.S. Patent Application 15/485,901, filed April, 2017. *Patent Pending.*
8. **Basu, Kinjal**, Saha, A., Chatterjee, S. (2017). “Large-Scale Multi-Objective Optimization”. U.S. Patent Application, filed April, 2017. *Patent Pending.*
9. **Basu, Kinjal**, Saha, A., Chatterjee, S. (2017). “Constrained Multi-Slot Optimization for Ranking Recommendations”. U.S. Patent Application, filed January, 2017. *Patent Pending.*

PROFESSIONAL
SERVICES

Chair

1. Program Committee Member at 27th World Wide Web Conference, *Lyon, France, April 2018* for “User Modeling, Personalisation and Experience”.
2. Program Committee Member at 26th World Wide Web Conference, *Perth, Western Australia, April 2017* for “User Modeling, Personalisation and Experience”.
3. Session Chair at 12th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, *Stanford, USA. August 2016* for “Quadrature at non-QMC points”.

Journal Reviewer

1. Computational Statistics and Data Analysis, Elsevier.
2. Journal of Approximation Theory, Elsevier.
3. Econometrics and Statistics, Elsevier.
4. IEEE Transactions on Knowledge and Data Engineering
5. Mathematical Reviews, AMS

Conference Reviewer

1. Conference celebrating Ian Sloan’s 80th Birthday, UNSW, Australia, 2018.
2. International Conference on Machine Learning (ICML 2017 and 2018)
3. Conference on Neural Information Processing Systems (NIPS 2017 and 2018)

INVITED
SPEAKER

1. Workshop on Discrepancy Theory, *Varenna, Italy . June 2016.*
2. Statistics Seminar, *Department of Statistics, Stanford University. May 2015.*
3. Industrial Affiliates Conference, *Department of Statistics, Stanford University. Feb 2015.*
4. ICERM workshop on Discrepancy Theory, *ICERM, Brown University. October 2014.*
5. Invited Talk for PCM Memorial Gold Medal Award, *Indian Statistical Institute, Kolkata. June 2012.*
6. Invited Talk for D. Basu Memorial Gold Medal Award, *Indian Statistical Institute, Kolkata. Sept 2011.*
7. United States Conference on Teaching of Statistics (USCOTS), *Ohio State University. June 2009.*
8. Statistics Seminar, *Department of Biostatistics and Epidemiology, University of Cincinnati. June 2009.*

CONFERENCE
PRESENTA-
TIONS

1. 2018 Bay Area Machine Learning Symposium. (BayLearn). *Menlo Park, CA, USA. October 2017.*
2. The 24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD 2018). *London, UK. August 2018*
3. 2017 Conference on Neural Information Processing Systems (NIPS 2017). *Los Angeles, USA. December 2017*
4. 2017 Bay Area Machine Learning Symposium. (BayLearn). *Cupertino, CA, USA. October 2017.*
5. Workshop on Quasi-Monte Carlo and High-Dimensional Sampling Methods for Applied Mathematics. *Duke University, Durham, NC, USA. August 2017*
6. 12th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, *Stanford, USA. August 2016*
7. Conference on Information Based Complexity, *Banach Center at Bedlewo, Poland. April 2015.*
8. 11th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, *Leuven, Belgium. April 2014.*
9. 10th IAPR International workshop on Document Analysis Systems, *Gold Coast, Australia. April 2012.*

AWARDS AND
HONORS

1. [Ingram Olkin Interdisciplinary Dissertation Award, 2016](#) awarded for the Best Thesis in the area of inter-disciplinary research to the graduating class of 2016.
2. NSF Travel Award for MCQMC 2014, Leuven, Belgium.
3. Ranked 3rd, at the International Second Biennial Undergraduate Statistics Project Competition (USPROC 2009)
4. Award for Academic Excellence, Indian Statistical Institute, Kolkata.
5. Summer Research Fellowship 2009, funded by the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India.
6. Summer Research Fellowship 2009, funded by the Indian Academy of Sciences.
7. Summer Research Fellowship 2008, funded by the Indian Academy of Sciences.
8. M.T & T. S. Summer Fellowship 2008, awarded by the National Board of Higher Mathematics.
9. Fellow of the Kishore Vaigyanik Protsahan Yojana (KVPY), 2008.
10. Indian National Mathematics Olympiad (INMO) 2006.
11. Governor's Award for "Excellent Academic Performance" in school final examination.