Anupreet Porwal

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Education

University of Washington, Seattle, Washington *(2018-present)*
Ph.D. Student, Department of Statistics

- Current Research Topic: Bayesian Models for Sparsity
- Advisors: Prof. Adrian Raftery, Prof. Abel Rodriguez

Indian Institute of Technology Kanpur (IIT K), India *(2012-17)*
B.S. – M.S. Dual Degree, Mathematics and Scientific Computing
Bachelor's GPA: **9.1/10.0**; Master's GPA: **10.0/10.0**
Department Rank: **1** (out of 55 students)

Research Interests

Bayesian Model selection, Bayesian models for Sparsity

Probabilistic Machine Learning, Bayesian Statistics

Statistical Modelling Techniques: Regression Analysis, Time Series Analysis

Publications

** indicates equal contribution*

Anupreet Porwal and Adrian E. Raftery. "Comparing Methods for Statistical Inference with Model Uncertainty." *In press at Proceedings of the National Academy of Sciences (PNAS).*

Anupreet Porwal, Sharmishtha Mitra, and Amit Mitra. "Order estimation of 2-dimensional complex superimposed exponential signal model using exponentially embedded family (EEF) rule: large sample consistency properties." *Multidimensional Systems and Signal Processing* 30, no. 3 (2019): 1293-1308. [Paper | Presentation | Code]

Gundeep Arora, **Anupreet Porwal**, Kanupriya Agarwal, Avani Samdariya, and Piyush Rai. "Small-variance asymptotics for nonparametric Bayesian overlapping stochastic blockmodels." In *IJCAI* (2018). [Report | Presentation | Code]

Sharmishtha Mitra and **Anupreet Porwal**. "Order Estimation of Superimposed Nonlinear Complex Cisoid Model Using Adaptively Penalizing Likelihood Rule: Consistency Results." *DEStech Transactions on Engineering and Technology Research, AMMA* (2017). [Paper | Presentation | Code]

Submitted Manuscripts & Preprints

Anupreet Porwal and Abel Rodriguez. "Laplace Power-expected-posterior priors for generalized linear models with applications to logistic regression.", *Submitted to Bayesian Analysis* [Paper | Code]

Anupreet Porwal*, Himel Mallick*, Erina Paul, Satabdi Saha and Vladimir Svetnik. "An Integrated Bayesian Framework for Multi-omics Prediction and Classification.", *Submitted to Statistics in Medicine.* [Software]

Erina Paul, Himel Mallick, **Anupreet Porwal**, ..., Richard Baumgartner. "Bayesian methods in nonclinical discovery.", *In submission to Statistics in Biopharmaceutical Research.*

Clara Berridge, Yuanjin Zhou, **Anupreet Porwal**, ..., Jeffrey Kaye. "Control matters in elder care technology: Evidence and direction for designing it in.", *Submitted to DIS 2022*

Scholastic Achievements

- **Dorothy M. Gliford teaching award 2021**: Awarded by Department of Statistics for outstanding performance by a graduate teaching assistant at UW Seattle
- **Boeing International Fellow** - Winter 2021, 2022
- **Coursera Department Fellowship 2018**: outstanding promise for graduate work at UW Seattle
- **B.D.Sanghi Gold Medal 2017**: Best academic performance in Department of Mathematics and Statistics at IIT Kanpur
- **Prof. Burton J. Moyer Gold Medal**: Best graduating Master's student among all the Natural Sciences department in 2017 (IIT K)
- **Proficiency Medal 2017**: Best graduate project work in Dept. of Mathematics and Statistics (IITK)
- **Academic Excellence Awardee (top 10% of 830 students)** for exemplary academic performance in consecutive academic years 2014-15 and 2015-16
- Inspire and Masters T.A. Scholarship: Conferred by Dept. of Science and Technology, Govt. of India

- Recipient of **Kishore Vaigyanik Protsahan Yojana (KVPY)** fellowship award, 2012 given to top 1% among 40,000 applicants by Department of Science and Technology (DST), Government of India

Professional Experience

Biostatistics Research Intern, Merck Research Laboratories *(Summer'21)*

- Proposed an **Integrated Bayesian framework for multi-omics** modelling and demonstrated superior performance on 4 public multi-omics datasets
- Developed a **R package** `IntegratedLearner` on Github with tutorials, demos, and example data for end users
- Contributed to **review paper** on Bayesian methods in non-clinical discovery

Analyst, North American Liability Strategies, Deutsche Bank, Mumbai *(Summer'17-18)*

- Conducted statistical tests on non-financial non-utilities members of S&P 1500 index to **determine rating metrics that drive credit ratings** for different industries.
- Established that **Overrated companies suffer** in their valuation by regressing EV/LTM EBITDA as a function of difference in true rating and predicted rating from ratings drivers model.

Summer Intern, EMEA Industrials, Deutsche Bank, Mumbai *(Summer'16)*

- **Proposed transformative acquisition** of a leading Swedish sports equipment producer by the largest RV equipment producer of the world and conceptualized **financial and strategic rationale** with better financial outlook for the combined entity.

Summer Analyst, Pervazive Automation Solutions Pvt. Ltd., Bengaluru *(Summer'15)*

- Pervazive is India's top emerging machine intelligence company for networks.
- **Devised automated learning algorithm** using decision trees based on network health statistics to semantically classify machine generated network errors.
- **Designed** a system to identify the valuable customers facing network congestion.

Research & Teaching Experience

University of Washington, Seattle, WA

Graduate Research Assistant

- Supervisor: Prof. Adrian E. Raftery ; Developing empirical framework to compare various variable selection techniques on 14 real life datasets *(Spring'20, Winter'21)*
- Supervisor: Prof. Abel Rodriguez ; Developing Laplace Power-Expected-Posterior priors approach for logistic models *(Spring'21)*

Teaching assistant

- STAT 341: Introduction To Probability And Mathematical Statistics II *(Winter'20)*
- STAT/CSSS 536: Analysis of Categorical and Count data *(Autumn'19)*
- STAT220: Statistical Reasoning *(Summer'19, Winter'19)*
- STAT311: Elements of Statistical Methods *(Summer'20)*
- STAT 509/ ECON 580: Econometrics I *(Autumn'18,20,21)*

Indian Institute of Technology, Kanpur, India

- **Teaching Assistant**, *Statistical Inference* *(Spring'17)*
- **Senior Academic Mentor**, *Counselling Service* *(2014-15)*

Relevant Coursework

Statistics and Machine Leaning:

- Regression Analysis
- Time Series Analysis
- Bayesian Data analysis
- Probability and Statistics
- Statistical Inference
- Non-Linear Regression
- Prob. Machine learning
- Bayesian Machine learning
- Learning with Kernels
- Statistical Data Mining
- Robust Statistical Methods
- Applied Stochastic Processes

Other Relevant Courses:

- Real & Complex Analysis
- Matrix theory & Linear Est.
- Intro. to Programming
- Data Structures & Algo.
- Convex Optimization
- Mathematical Modelling

Technical Skills

Advanced: R, Octave, MATLAB, Microsoft Office, LaTeX
Basic: C, C++, Python, SQL, HTML5, SAS

Service

- **UW Statistics Department Diversity, Inclusion, Community & Equity Committee**
  - Led the Pre-application review service (PARS) program launched by the department to provide support and mentorship to PhD applicants from historically marginalized groups
- **UW Statistics Department Admissions Screening Committee** *(2020,2021)*
- **UW Statistics Department PhD student peer mentor** *(2020-Present)*
- **Statistics Undergraduate Directed Reading Program**, *UW Seattle* [SPA-DRP]
  - Bayesian Linear Regression *(Winter'20)*
  - Expectations and Sampling methods *(Spring'21)*
- **Student Undergraduate Committee Student Nominee**, *IIT Kanpur* *(2016-17)*
  - Nominated by student senate to represent the undergraduate student community in determination, coordination and review of general policies for the institute.
- **Department Undergraduate Committee Student Nominee** *(2014-15)*
  - Elected to represent the interests of 150 undergraduate students in academic and general affairs.
  - Involved in decision making matters like course restructuring, template changes and student appeals.