Saurav Bose

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Education

- **University of Pennsylvania** — Philadelphia, PA
  Dual Master of Science in Scientific Computing and Mechanical Engineering; GPA: 3.8/4.0 — *2015 – 2018*
  Concentration in Statistics, Machine Learning and Numerical Analysis

- **National Institute of Technology Karnataka** — Surathkal, India
  Bachelor of Technology in Mechanical Engineering; GPA: 8.8/10.0 — *2011 – 2015*
  Concentration in Numerical Analysis and Simulation

Experience

- **Children's Hospital of Philadelphia Research Institute** — Philadelphia, PA
  Data Scientist II — *Jan 2021 - Present*
  - Led applied machine learning projects to predict various clinical outcomes using large scale EHR data from ideation to dissemination (see Publications).
  - Presented research findings to varied technical and non-technical audience of clinicians, scientists, analysts, and programmers.
  - Provided technical mentorship to students and fellow data scientists.

  Data Scientist I — *Jul 2018 - Dec 2020*
  - Performed exploratory data analysis and predictive modeling in pediatric biomedical research using machine learning, statistical, and mathematical analysis incorporating heterogeneous and complex data.
  - Collaborated with clinicians and other domain experts to formulate and execute analysis plans.

- **University of Pennsylvania** — Philadelphia, PA
  Graduate Research and Teaching Assistant — *May 2016 - May 2018*

  Research
  - Worked with the School of Medicine and the School of Engineering on multiple research projects (see Portfolio for more details).
  - Extended core Relief Based Algorithms (RBAs) for feature selection to their iterative variants suitable for Big Data applications. Made open-source contributions to scikit-rebate (a scikit-learn package under active development).
  - Developed C/C++ codes implementing variations to Metropolis Monte Carlo algorithm for parametric estimation of molecular properties of fluids.

  Teaching
  - Head TA at the Wharton School for Mathematical Statistics (Prof. Warren Ewens).
  - TA at the Engineering School for advanced Machine Learning (Prof. Shivani Agarwal).
  - Conducted office hours, tutorial sessions and mentored student projects.

- **Avis Budget Group** — Parsippany, NJ
  Data Science Intern — *May 2017 - Aug 2017*
  - Built one of their earliest in-house rental demand prediction models using an ensemble of regularized multiple regression and time series analysis techniques.
  - Automated the rental demand and model performance reporting processes through the extraction, munging and visualization of large siloed corporate data.

Publications

- **Bose, S.**, Kenyon, C. & Masino, A.J. "Personalized Prediction of Early Childhood Asthma Persistence: A Machine Learning Approach", *Under Review*
- Masino, A.J., **Bose, S.**, Epifano, J., Nelson, O., Wasey, J.O., Tan, J.M., Elliott, E., Simpao, A.F., Galvez, J.A. "Machine Learning Detection of Perioperative Respiratory Adverse Events for Children Undergoing General Anesthesia", *Under Review*
- Urbanowicz, R.J., Xu, A., **Bose, S.**, Orzechowski, P., Fu, W. & Moore, J.H. "Scaling Advanced Feature Selection Methods for Biomedical Informatics and Beyond", *In Preparation*

Skills

- **Programming**: Python, R, SQL, C++, MATLAB
- **Tools and Technologies**: PyTorch, GCP, Git, Docker, Tableau

Relevant Coursework

Machine Learning, Big Data Analytics, Mathematical Statistics, Modern Data Mining, Data Science for Bioinformatics, Analysis of Algorithms, Numerical Methods, Probability Theory and Applications, Linear Algebra, Single and Multi-variable Calculus.