Apratim Bajpai, Ph.D.

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Summary

- Highly motivated research scientist with 11 years of academic/industrial experience in leveraging data analysis, statistical experimentation design, research, and development to solve complex interdisciplinary problems as evidenced by 12 peer-reviewed publications with over 200 Citations.
- Excellent communication and interpersonal skills with the ability to foster and nurture collaborations demonstrated by 12 interdisciplinary academic publications, leadership of 9 teaching and outreach programs, personnel management in industry and teaching and assisting in 7 academic courses.

Education

Ph.D. in Mechanobiology, New York University, 3.91

Thesis: Integrated Micromechanical system for investigating the Mechanisms of Aging-Associated Decline in Vascular Cell Mechanosensation

MS in Computer Science, OMSCS Georgia Tech, (**ongoing**)

Key subjects:
Machine Learning: Gained strong understanding of machine learning principles.

Deep Learning
- Worked on semi supervised learning for image classification using knowledge distillation and fix match algorithm.
- Gained understanding of current state of the art deep learning architectures, including transformers.

Intro health informatics: Worked with FHIR standards and medical data integration.

MS. in Mechanical Engineering, NYU, 3.85

B.Tech in Mechanical Engineering, NIT Trichy

Work Experience   2013-Present

Project Manager, S&D Corp   2023-Present

Simultaneous managed multiple (20+) projects involving design, engineering, fabrication, installation scheduling, and cost control for projects with transit authorities and real estate developers across tri state area.

- Employed data driven recommendations to prototype and implement custom manufacturing solutions resulting in a 20% reduction in production costs and improved part retention.

Post Doctoral Researcher, Icahn School of Medicine, Mount Sinai   2022-23

Worked on design and development of biomechanical testing for tissues and cells.

- Led research initiatives comprising of life science experts and engineers to study iPSCs and brain tissues proving key changes associated with electrical and chemical stimulations.
- Created data standards, ontologies and metadata for atomic force microscopy data.
- Created a **cloud deployed application using flask** to perform data wrangling, data imputation and EDA using **Pandas**, **NumPy**, **Sklearn** and **Matplotlib** in **Python** to distinguish the characteristics of force dynamics at a single cell level.

Research Scientist, Bioinformatics and Biomedicine, New York University   2016-22

Pursued independent and impactful research problems to understand vascular cell mechanosensation.

- Investigated vascular cell mechanosensation using data from multiple sources including imaging, cellular forces, RNA sequencing, and cellular signaling pathways.
- Applied a combination of **image processing**, **optical flow tracking**, and **finite element modelling** to predict modes of vascular cell migrations.
- Created custom **ETL routines** and **data engineering pipelines (Azure)** that reduced image processing time from 10 minutes per image to < 1 minute, enabling batch processing of image data.

Senior Engineer, Business development, Larsen and Toubro Ltd.   2013-15

Managed application engineering, marketing, distribution and analytics for Sumocham line of drilling products.

- Built automatic reporting around key financial metrics, reducing quarterly time expenditure by around 65 hrs.
- Aggregated data to model sales and operations, communicating reports, insights, and recommendations for 10+ sales teams.
- Owned financial analyses, evaluating year to year and quarter to quarter reports to advise smarter sales strategies, which increased sales by **30% in 2015**.

Skills

Research and Development	Prototyping	Data Analysis
Presentation Skills	Collaboration Skills	Technical Writing
Project Management	People Management	Leadership
Python Programming	Deep Learning	Confocal Microscopy

Certifications

- TensorFlow Developer Certificate, Google
- Astronomer Certification for Apache Airflow Fundamentals
- Data Analyst Professional Certificate, DataCamp
- Others

Awards

- Graduate School of Engineering Scholarship
- SOE PhD Fellows Scholarship
- Placed in top 3% in the IIT-JEE (Indian Institute of Technology-Joint Entrance Exam)
- Placed in top 0.4% of the AIEEE (All India Engineering Entrance Exam)

Leadership and extracurriculars

- Advocated for and successfully implemented a more equitable grading metric for dispensing Latin honors to engineering students as a student senator representative in the Senate academic affairs committee, NYU.
- Spearheaded the diversity and equity team and worked on projects for dispensing free menstrual hygiene products in restrooms as the executive member of NYU graduate student council.

List of Publications

Google Scholar: https://scholar.google.com/citations?hl=en&user=pTPTy6AAAAAJ