Apratim Bajpai

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Biomedical Research Scientist

A biomedical scientist, adept at instrumentation, signal/image processing, statistics, and experimental design. Designed and validated 3 biomedical sensing/analysis platforms, resulting in 12 research papers. An adaptable, collaborative, detail-oriented self-starter excelling in fast-paced environments with an ability to embrace failures.

WORK EXPERIENCE

Icahn School Of Medicine, Mount Sinai
08/2022 - 07/2023

Post Doctoral Researcher

- Developed a novel biosensing platform by combining electrical stimulations with atomic force microscopy for measurement of dynamic responses in iPSCs.
- Applied advanced statistical methods like T-test, hypothesis testing, ANOVA, and Correlation analysis on data from IPSCs proving changes associated with electrical stimulations.
- Performed statistical analysis on complex spectroscopy data using Python, identifying sources of variation and informing algorithm design.

Bioinformatics And Biomedicine, New York University
01/2016 - 08/2022

Biomedical Scientist

- Performed statistical analyses on biological systems resulting in the development of biomedical sensing platforms for mechanophenotyping.
- Designed preprocessing schemes for improved data analysis and processing speed, allowing for dynamic analysis of complex biological systems.
- Conducted differential expression analysis, using advanced bioinformatics tools to identify gene expression patterns and insights into aging, demonstrating RNA-seq proficiency.

Larsen And Toubro Ltd.
01/2013 - 12/2013

Senior Engineer

- Provided application support including equipment design and documentation for a range of instrumentation needs in heavy industry and manufacturing.
- 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.

CERTIFICATIONS

Astronomer Certification for Apache Airflow Fundamentals
12/2023

Astronomer

Data Analyst Professional Certificate
10/2023

DataCamp

TensorFlow Developer Certificate
04/2023

TensorFlow Certificate Program

EDUCATION

Ph.D. In Mechanical Engineering
New York University • GPA: 3.91

Bachelor Of Technology In Mechanical Engineering
National Institute Of Technology • Trichy, Tamil Nadu, India

SKILLS

A/B Testing, Atomic Force Microscopy, Batch Processing, Communication, Confocal Microscopy, Correlation Analysis, Data Aggregation, Data Analysis, Effective Communication, Exploratory Data Analysis, Problem Solving, Project Management, Python, Research and Development, Statistical Analysis, Teamwork, Technical Writing

VOLUNTEERING & LEADERSHIP

Read Ahead
10/2017 - 05/2018

Mentor • New York, NY

Dedicated mentor in Read Ahead program, fostering a love for reading and imparting life skills to young minds. Inspiring students to overcome challenges, build resilience, and develop a passion for learning.

Student Senators Council, NYU
09/2016 - 05/2017

Senator • New York, NY

As NYU Student Senator, championed equity in grading metrics for Latin honors in the Academic Affairs Committee. Led the Diversity and Equity Team in the Graduate Student Council, spearheading projects for free menstrual hygiene products in restrooms. Committed to fostering inclusivity and positive change.

PUBLICATIONS

Aging-associated Decline in Vascular Smooth Muscle Cell Mechanosensation is Mediated by Piezo1 Channel
Aging Cell

Cellogram: on-the-fly traction force microscopy
Nano letters

Energy-mediated machinery drives cellular mechanical allostasis
Advanced Materials

Single-Cell Analysis of Contractile Forces in iPSC-Derived Cardiomyocytes: Paving the Way for Precision Medicine in Cardiovascular Disease
Int J Mol Sci

Microskeletal stiffness promotes aortic aneurysm by sustaining pathological vascular smooth muscle cell mechanosensation via Piezo1
Nature communications

The interplay between cell-cell and cell-matrix forces regulates cell migration dynamics
Biophysical journal