Ameya Daigavane

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Education

- **Indian Institute of Technology, Guwahati** — Guwahati
  B.Tech in Computer Science and Engineering — *2016-2020*
  - Major GPA 9.38/10, with a Minor in Mathematics (Minor GPA 10/10).

Experience

- **Pre-Doctoral Researcher - Google Research** — Bangalore
  Mentors: Dr. Gaurav Aggarwal and Dr. Prateek Jain — *September 2020 - Current*
  - Designing differentially-private graph neural networks.
  - Researching interactive techniques for visualizing microplate experiments.
- **Research Intern - NASA, Jet Propulsion Laboratory** — Pasadena
  Mentor: Dr. Gary Doran, Machine Learning and Instrument Autonomy — *June 2020 - August 2020*
  - Designed, prototyped and assessed radiation sensitivity of time-series anomaly detection methods in a flight system setting.
- **Research Intern - NASA, Jet Propulsion Laboratory** — Pasadena
  Mentor: Dr. Kiri Wagstaff, Machine Learning and Instrument Autonomy — *May 2019 - July 2019*
  - Explored unsupervised algorithms for onboard event detection in time-series data for the Plasma Instrument for Magnetic Sounding on the upcoming Europa Clipper mission.
  - Developed a novel extension of the matrix profile for the discovery of anomalous subsequences in multidimensional time-series.
- **Research Intern - Indian Institute of Science** — Bangalore
  Mentor: Prof. Aditya Gopalan, Dept. of ECE — *May 2018 - July 2018*
- **Research Intern - Indian Institute of Technology, Gandhinagar** — Gandhinagar
  Mentor: Prof. Shanmuganathan Raman, Dept. of EE — *May 2017 - July 2017*

Publications

- **Unsupervised Detection of Magnetic Field Boundary Crossings From Plasma Spectrometer Data**
  ***Ameya Daigavane**, Kiri Wagstaff, Gary Doran, Corey Cochrane, Caitriona Jackman, and Abigail Rymer.*
  Published at Computers and Geosciences, 2022.
- **Resource Consumption and Radiation Tolerance Assessment for Data Analysis Algorithms Onboard Spacecraft**
  *Gary Doran, **Ameya Daigavane**, and Kiri Wagstaff.*
  Accepted at IEEE Transactions on Aerospace and Electronic Systems, 2022.
- **Integrating Deep Learning and Unbiased Automated High-Content Screening to Identify Complex Disease Signatures in Human Fibroblasts**
  Lauren Schiff, et al.
  Published at Nature Communications, 2022.

- **Node-Level Differentially Private Graph Neural Networks**
  ***Ameya Daigavane**, Gagan Madan, Aditya Sinha, Abhradeep Thakurta, Gaurav Aggarwal, and Prateek Jain.*
  Accepted for oral presentation (one of four papers) at PAIR^{2}Struct, ICLR - 2022.

- **Understanding Convolutions on Graphs**
  ***Ameya Daigavane**, Balaraman Ravindran, and Gaurav Aggarwal.*
  Published at Distill, 2021.

- **Interactive Media for Understanding ML Methods: A Case-Study on Graph Neural Networks**
  ***Ameya Daigavane**, Balaraman Ravindran, and Gaurav Aggarwal.*
  Accepted for poster presentation at Rethinking ML Papers, ICLR - 2021.

- **Detection of Environment Transitions in Time Series Data for Responsive Science**
  ***Ameya Daigavane**, Kiri Wagstaff, Gary Doran, Corey Cochrane, Caitriona Jackman, and Abigail Rymer.*
  Accepted for oral presentation (one of five papers) at MiLeTS, KDD - 2020.

- **2-uniform Words: Cycle Graphs, and a Algorithm to Verify Word-Representations of Graphs**
  ***Ameya Daigavane**, Mrityunjay Singh, and Benny K. George.*
  Accepted for presentation at Workshop on Words and Complexity, 2018.

Awards and Honours

ACM SIGBED Scholars Award – One of three undergraduates awarded 2020
ACM SIGKDD Student Registration Award 2020
Caltech Summer Undergraduate Research Fellowship (SURF) Award 2019
ACM ICPC Qualifiers – 61st in India among 4000+ teams 2019
ACM ICPC Kanpur Regionals – 18th in India among 200+ teams 2019
OzCHI Student Design Challenge – Honorable Mention (Top 5) 2019
Outstanding (AS) Grade in 10 courses across CS and Math 2016-2020
Analyze This – Outstanding Performer – 55th in India among 2000+ teams 2017
KVPY Science Scholarship – SA Stream – 156th in India 2015
FIITJEE Talent Reward Examination – 1st in India 2014
Regional Mathematics Olympiad – 1st in state 2014

Selected Open-Source Contributions

- **Magnetic Field Boundaries in Cassini Plasma Spectrometer Data**
  Caitriona Jackman, Michelle Thomson, Michele Dougherty and Ameya Daigavane.
- **ogbg-molpcba** Molecular activity prediction with graph neural networks in JAX
  Ameya Daigavane and Thomas Kipf.
- **fmga** Derivative-free objective function maximization with parallelized genetic algorithms
  Ameya Daigavane. *70+ stars on*
- **densratio_py** α-Relative probability density ratio estimation with RuLSIF
  Koji Makiyama and Ameya Daigavane. *100+ stars on*

Community Volunteering

- **English on Call**: Taught English to economically disadvantaged students.
- **SHINE Youth4Jobs**: Mentored differently-abled participants on time, emotion, and career management.