PRANAV GUPTA

pgpt@ucdavis.edu | www.pranavgupta0001.com

EDUCATION

University of California, Davis, USA — September 2024 - ongoing
PhD in Computer Science - Fulbright scholar. Advisor: Prof. Ilias Tagkopoulos
Research Areas: Machine Learning, Natural Language Processing, Knowledge Graph Construction, and Food & Health AI

York University (YU), *Toronto, Canada* — August 2024
Bachelor of Science, Physics with Honours & Computer Science — *GPA: 3.96/4.00*

Arizona State University (ASU), *Phoenix, America* — May 2024
Exchange semester - Fulbright scholarship as part of the Killam Fellowship Program. — *GPA: 3.82/4.00*

AWARDS AND RECOGNITIONS

- Fulbright Traditional Student Award: Secured external funding for graduate research.
- NSERC Government Research Award: Ranked amongst the top 7% of students from the 6th- 9th Semesters nationwide.
- MRS-spring 2024 conference, Washington: Presentation in ML methods for Sustainable Electronics category
- Emeritus Professor's Award, Department Rank: Ranked 1st in the Dual Degree Program (Physics and Computing), YorkU.
- University of Montreal- Astromatic, 2023: Selected amongst the top 16 students worldwide.
- Killam Fellowship, 2023: Selected amongst the top 12 students in North America.
- Recipient of the Dean's Honour Roll – 2022, 2023
- Merit Prize (OSOTF, 2022 & Ogram Excellence Scholarship, 2023): Ranked amongst the Top students at YorkU.
- Scholarships: Awarded the Indo-Canadian Scholarship in 2021 and Bell Scholarship in 2022 and 2023.
- Bergeron Entrepreneurs in Science and Technology Startup Experience Award, 2022

EXPERIENCE

University of California, Davis:

PhD Researcher | AI Institute of Next Generation Food Systems — Sep 2024 – Present

- Leading machine learning research on food and health data under the guidance of Prof. Ilias Tagkopoulos.
- Integrating AI insights into business applications in the food and health sectors.

York University:

Undergraduate Research Assistant | Data Mining Lab — Sep 2023 – Aug 2024

- Identified and addressed key challenges in trajectory-user linking, such as data sparsity and model skewness, by proposing a novel data representation method using regular tessellation in hexagons under the guidance of Prof. Manos Papagelis.
- Conducted ablation study to optimize model performance.
- Awarded: LURA and NSERC for exceptional potential in the field of AI and Data Mining.

Machine Learning Summer Researcher | E-AM Lab — May 2023 – Aug 2023

- Collaborated with Prof. Gerd Grau, Prof. Dazhong Wu to explore the application of machine learning for predicting and tailoring the properties of laser-induced graphene (LIG), a promising material for next-generation electronics.
- Pioneered a novel approach using Google BERT models to transform complex polymer molecular structures into a format suitable for ML analysis. This innovation significantly improved model accuracy in predicting key LIG properties.
- Awarded: NSERC undergraduate research award. Presented results at the MRS Washington conference, selected for MLSS Okinawa and received media attention. (Video)

Data Analysts | HAIIvVE | Deloitte Canada — Feb 2023 – May 2023

- Led research under advisors Puneet Bassi, Prof. Mir Ahasan Kabir, concentrating on advanced statistical analyses to extract insights from large datasets, especially in the context of financial reports from global insurance banks.
- Effectively communicated complex data analyses to stakeholders, presenting findings at two industry seminars.

PASS Leader - Tutor | Faculty of Science — July 2022 – April 2023

- Provided academic support for undergraduate physics and math courses, where I guided students in understanding complex mathematical concepts and advanced problem-solving techniques essential for AI model comprehension.
- Led engaging and interactive weekly tutorial sessions and established strong relationships with students and professors.

Website Developer | Bethune College Oct 2021 – June 2022

- Implemented cost-effective measures through transitioning web development services, resulting in a 15% reduction in operating costs and a 25% increase in website purchases, proving my effectiveness in utilizing data analytics for business solutions.

PROJECTS

GCN- Trajectory-User Linking using Higher-order Mobility Flow Representations | *Work in progress*
Khoa Tran*, Pranav Gupta*, Manos Papagelis

Learning Cosmological Parameters with Machine Learning | *U-Net, Diffusion Model* | [code]

- Utilized a Score-based diffusion model and U-Net architecture to infer cosmological parameters and map dark matter in N-body simulations to the full matter density from hydro simulation.
- Implemented Bayesian Neural Networks (BNN) and Approximate Bayesian Computation (ABC) to measure the uncertainty of the model, reflecting a comprehensive approach to uncertainty quantification in neural networks.
- Processed and analyzed data from the CAMELS suite of simulations, demonstrating data wrangling and preprocessing skills.

TECHNICAL STRENGTHS

Languages: Python, Java, JavaScript, R, C, C++, SQL, HTML, CSS, English, Hindi, Punjabi
Data Science Tools: TensorFlow, PyTorch, Scikit-Learn, Pandas, NumPy, Matplotlib, Seaborn, MATLAB
Others: AWS, GCP, Docker, MySQL, Big Query, MongoDB, GIT, React
Skills: Machine Intelligence + Mathematics, Statistics, Signal Processing

SERVICE/OTHER INVOLVEMENTS

- Member of Tennis Club and Guitar Club at UC Davis 2024
- Presentation in ML methods for Sustainable Electronics category at MRS conference, Washington 2024
- Executive of Data Science Club and Sun Devil Stock Exchange at ASU 2024
- Mentored 27 undergraduate students at York University. 2022-2023
- Manager of the Hugging Face York University organization, serving as an administrator. 2023
- The Annual Meeting of Big Data & AI Leaders in Canada Participant 2023
- NSERC industrial stream CREATE program participant 2023
- York University Class representative for PHYS1011, PHYS1012, PHYS2040, PHYS3010 and PHYS4061 2021-2022
- Representative of YU as Student Advisory Council member at the Canadian Association of Physicists 2022
- Manager and Marketing Executive at the annual cultural festival of York University: Formal 2022
- Hosted a seminar on the Benefits of Graduate school with Michael Lu, attended by over 52 students. 2022
- Event coordinator for Bethune College Council and Astronomy Club Executive. 2021-2022