Kishore Basu

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EDUCATION

University of Toronto   **Toronto, ON**
Master of Statistics   expected 2023
- Ran tutorials and graded coursework for STA237H (Probability, Statistics & Data Analysis I) as a teaching assistant

Western University   **London, ON**
Honors Bachelors of Science in Applied Mathematics, Western Scholars Program   2022
- 4.00/4.00 GPA
- Dillon Gold Medal 2022 – Awarded for graduating top of the class (highest GPA in cohort)

EXPERIENCE

Advanced Micro Devices (AMD), Institute for Pure and Applied Mathematics (IPAM)   **Los Angeles, CA**
Machine Learning Engineer   June 2022 – August 2022
- Selected with 35 other applicants out of > 4000; worked in a fast-paced environment in team of 4
- Created Bayesian physics-informed neural networks (PINNs) to extract physical insights 700x faster than leading models and quantify uncertainty in model predictions using Python
- Proved the existence of an upper bound for extrapolation error of PINNs using mathematical analysis
- Demonstrated a systematic tendency for Bayesian networks to be overconfident by a factor of 100

Department of Mathematics, Courant Institute of Mathematical Sciences, New York Univ.   **New York, NY**
Mathematics Researcher   June 2021 – August 2021
- Synthesized key results in algorithm analysis and stochastic processes to create a stochastic model of the cell cytoskeleton in Fortran 95
- Created new time-marching algorithm that provides a 3x increase in time-step size
- Simulated > 100 stochastic differential equations in parallel to summarize the core dynamics of cell biology

Maplesoft   **Waterloo, ON**
Software Developer   May 2020 – August 2020
- Created an algorithm to simplify the Lambert W function, which is now implemented in Maple software
- Communicated with multiple levels of management to combat pressing client-facing issues
- Adapted to changing needs and demands from client, incorporating them into an efficient algorithm
- Synthesized information into a report (listed below), and into high-impact presentations to senior executives and clients at Maple 2020 and SYNASC 2020 conferences

PROJECTS, PUBLICATIONS, AND PRESENTATIONS

NeurIPS (Conference on neural Information Processing) 2022
- Basu, K. et al. (2022) Uncertainty quantification methods for ML-based surrogate models of scientific applications.
- This work will also be presented at the Joint Mathematics Meeting (JMM) in Boston, MA, in early 2023

Maplesoft Research Publication
- Ayoub T.J., Basu K., Jeffrey D.J. (2021) Bernoulli's Problem $x^y = y^x$ and Maple. In: Corless R.M., Gerhard J., Kotsireas I.S. (eds) Maple in Mathematics Education and Research. MC 2020. Communications in Computer and Information Science, vol 1414. *Springer, Cham*. https://doi.org/10.1007/978-3-030-81698-8_5

EXTRACURRICULARS

Model United Nations   **London, ON**
Director of Finance & Delegate   Sept 2020 – April 2022
Charity Chords   **London, ON**
Director of Finance   Sept 2020 – April 2022
Science Student Council   **London, ON**
Member of Student Council   Sept 2020 – April 2021

Computer Skills: TensorFlow, sklearn, numpy, pandas, Java, R, SQL, LaTeX, Maple
Interests: Guitar, Hiking, Racquet Sports, Travel (Colombia, India, Thailand, France), Reading