Brinda Venkataramani

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EDUCATION

University of Toronto — Toronto, ON | Sept 2022 - present
Doctor of Philosophy in Mathematics (PhD)
Coursework: Set theory, infinitary combinatorics, Ramsey theory, mathematical physics; supervision by Dr. Stevo Todorcevic and Dr. Spencer Unger

University of Waterloo — Waterloo, ON | Sept 2022 - present
Master of Science in Physics (MSc)
Coursework: Quantum computing, quantum information theory, quantum materials; specialization in quantum laboratory methods; supervision by Dr. Kevin Resch

University of Toronto — Toronto, ON | Jan 2022 - Aug 2022 (incomplete)
Master of Engineering (MEng)
Coursework: GPA: 3.7/4.0 | Neural networks, big data, AI, deep learning, cryptocurrency; requested withdrawal from program in Summer 2022 to pursue other interests

McMaster University — Hamilton, ON | Sept 2019 - May 2021
Master of Science in Mathematics (MSc)
Coursework: GPA: 4.0/4.0 | Analysis, set theory, model theory, algebra, algebraic topology, differential geometry, computability theory; supervision by Dr. Patrick Speissegger

McMaster University — Hamilton, ON | Sept 2014 - May 2019
Bachelor of Science in Mathematics (BSc)
Coursework: GPA: 3.3/4.0

WORK EXPERIENCE

SELF-EMPLOYED | Web Developer — Toronto, ON | May 2022 – present

- Designed webpages for independent contractors.
- Made use of **AngularJS** and **jQuery** to create dynamic responsive pages with smooth transitions.
- Listed and performed **SEO** via **GSC** to increase web traffic.

UNIVERSITY OF TORONTO | Teaching Assistant (TA) — Toronto, ON | Jan 2022 - May 2022

- In-lecture TA for MIE 1000 – the introductory dynamics course for engineering students.
- Answered student questions regarding course content during lectures via Zoom to avoid lengthy disruptions to lectures.
- Monitored student forum to clarify any concerns.

PREDICTA4 | Angular Developer and Reliability Engineer — Toronto, ON | Aug 2021 – Oct 2021

- Added prototype devices to server with **SQL** queries for debugging.
- Used **Postman** to register devices on user accounts for **API** debugging.
- Identified UI bugs via test cases.
- Calibrated devices prior to shipment.
- Added new fields to database to aid debugging during device setup, and used **Postman** to ensure fields were compatible with **Android** code and embedded **C** code of device prototypes.
- Prepared technical reports outlining necessary requirements to make code changes at all levels, including back-end **Java** code, front-end **Javascript**/**AngularJS** code, and device embedded code.
- Integrated **plot.ly** library with existing front-end and custom **APIs** to improve UI experience.

MCMASTER UNIVERSITY | Teaching Assistant (TA) — Toronto, ON | Sept 2019 - May 2021

- Prepared solutions to and marked student assignments and tests for the multivariable calculus series courses (Math 2X03 and Math 2XX3).

- Assisted students in various courses including linear algebra and proof-based calculus series courses (Math 1C03, Math 1X03, Math 1XX3, Math 1B03, Math 1XA3) in the Math Help Centre (MHC) weekly.
- Led review sessions prior to tests and exams for a number of courses.
- Assisted running pop-up tutorials for higher-level courses such as analysis (Math 3A03) when needed.

TCS | Developer — Toronto, ON | May 2017 - Aug 2017

- Developed a patch for Microsoft SharePoint on Blackberry client to improve workflow automation.
- Automated data entry across **Excel** workbooks using macros and **Visual Basic scripting**.
- Aided in development of **Java** application at point-of-contact to assess risk of clients applying for mortgages.

CIBC | Business Systems Analyst — Toronto, ON | May 2015 - Aug 2015

- Used **Microsoft Visio** to document workflows prior to server migration.
- Captured and documented data structures transmitted during workflow using XML.

AWARDS AND HONORS

WATERLOO DOCTORAL ENTRANCE AWARD FOR WOMEN [5K CAD] — Sept 2022 (declined)
Awarded to academically outstanding female students entering their first year of graduate study. (Deferred from Sept 2021.)

DEPARTMENTAL NOMINATION TO ATTEND MSRI GRADUATE SCHOOL — July 2021 - Aug 2021
Course title: On Foundations and Frontiers of Probabilistic Proofs. (School was to be on-site at ETH Zurich but was held remotely due to the ongoing COVID-19 pandemic; award value was for travel to and accommodations at Zurich.)

ONTARIO GRADUATE SCHOLARSHIP [15K CAD] — Sept 2020
Awarded to students with demonstrated research potential for a period of 2 terms. Studied o-minimal structures.

MCMASTER JAMES STEWART SUMMER STUDENT RESEARCH AWARD (JSSRA) [3K CAD] — May 2019
Awarded to students demonstrated academic excellence to conduct mathematics research over the Summer term.

MCMASTER HONOR AWARD [1K CAD] — Sept 2014
Entrance scholarship for students entering their freshman year with an entrance average of 90-94%.

PROJECTS

STARCRAFT II AUTO-COMMENTATOR — Python, Jupyter Notebook, TensorFlow, PyTorch, RNN
A neural network designed to and trained to generate commentary for StarCraft II gameplay videos. Joint collaboration with Ian Bennett and Miguel-Rogel Garcia for the Winter 2022 session of MIE 1517.

SKILLS

Languages: Java, C, Python, C, SQL, Matlab, Solidity, Bash, Visual Basic
Web Development: JavaScript, HTML/CSS, jQuery, AngularJS
Technologies: node.io, LaTeX, Git, TensorFlow, PyTorch, Keras, numpy, SimPy, Postman, FTP. Google Search Console (GSC), plot.ly, Microsoft Visio, XMLSpy, Verilog

SERVICES TO THE FIELD

- Reviewer for STEM Fellowship's High School Big Data Challenge in 2021
- LaTeX Mini-Crash-Course Organizer for McMaster University Undergraduates
- Organizer of an introductory coding course for elderly WoC.
- Curriculum designer for high-school enrichment program in pure logic facilitated by McMaster Women in Mathematics.

REFERENCES

Patrick Speissegger	speisseg@math.mcmaster.ca
Matt Valeriote	matt@math.mcmaster.ca
Stevo Todorcevic	stevo@math.utoronto.ca

PUBLICATIONS[1]

Preprints & Publications

1. Venkataramani, B. Neural network facilitated Diehard-resistant random number generation (in preparation)

Theses

1. Venkataramani, B. Axiom of Choice and the Partition Principle (2021). Master's thesis, McMaster University.

[1]Copies available upon request.