Abhilash Mathews

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Awards & Notable Achievements

- Joseph P. Kearney Fellowship: September 2017
- Western University Dean's Honour List: 2014–2017
- Donald R. Hay Prize: June 2017
- Lorraine Ivey Shuttleworth Continuing Award: 2014–2016
- Undergraduate Summer Research Award (Natural Sciences & Engineering Research Council of Canada): 2015–2016
- James & Beverly Thompson Award: January 2016
- Western International Learning Award: January 2016
- Delta Alpha Chapter of Beta Theta Pi Leadership Award: 2014–2015
- Lynn Fordham Award in Science & Engineering: October 2015
- Laurene Paterson Estate Scholarship: October 2014
- The Parents Fund Scholarship: October 2014
- Canadian Mar Thoma Merit Award: October 2013
- Western Scholarship of Excellence: June 2013
- Mackenzie Health Service Award: June 2013

Research Experience

MIT Plasma Science & Fusion Centre Researcher (Plasma Physics)
Cambridge, Massachusetts: September 2017–Present

- Studying pedestal physics in collaboration with international tokamak experiments to improve predictive capabilities of plasma mode transitions in current and expected upcoming magnetic-confinement fusion devices
- Using machine learning techniques and analytic models to better understand enhanced confinement modes and transitions for fusion plasmas

Western University Researcher (Astrophysics) – Supervisor: Dr. Martin Houde
London, Ontario: May 2016–April 2017

- Used the Heisenberg framework to analyze superradiance in astrophysical environments (e.g. active galactic nuclei, interstellar medium) to elucidate anomalous emissions and study large-scale entangled quantum mechanical systems naturally present in the universe
- Developed C++ and Python code run on SHARCNET clusters to solve a set of nonlinear partial differential equations which model coherent radiation from an ensemble of atoms

York University Researcher (Particle Physics) – Supervisor: Dr. Scott Menary
Toronto, Ontario: May 2015–August 2015

- Successfully designed and optimized an antiproton beam monitor's dimensions and algorithm using CVD diamond for the ALPHA experiment at CERN
- Created simulations of thousands of randomly generated antiproton beams and incorporated noise using Monte Carlo methods with Python
- Presented research poster and wrote manuscript—received two awards for best poster presentation

Professional & Volunteer Experience

Caradoc Animal Clinic Veterinary Assistant
Strathroy, Ontario: January 2015–April 2017

- Facilitate appointments and offer basic medical counselling
- Monitor and restrain animals during treatment
- Perform general clinical work (including animal feeding, scheduling, maintenance, and customer service)

Procyon Wildlife Senior Volunteer
Beeton, Ontario: May 2014–August 2015

- Treated newborn and/or ill raccoons, squirrels, rabbits, deer, skunks, coyotes, and foxes
- Assisted with feeding and medicating (subcutaneous and oral)
- General labour and maintenance of the rehabilitation centre
- Recorded behaviour of animals and released wildlife back to their original habitat

Mackenzie Health (formerly York Central Hospital) Volunteer
Richmond Hill, Ontario: July 2011–August 2014

- Discharged and accompanied patients in all daily activities
- Carried mail, transported specimens, and delivered gifts to patients
- Completed miscellaneous work for all departments in the hospital

Education

Massachusetts Institute of Technology Doctor of Philosophy, PhD (Plasma Physics)
Cambridge, Massachusetts: 2017–Present

Western University Honours Bachelor of Science, BSc (Physics)
London, Ontario: 2013–2017