Prateek Gupta **Curriculum Vitae**

Prateek Gupta
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PROFESSIONAL SUMMARY

Blends lab management experience and research experience with academic training at the University of Toronto to offer solid skills in technical experiments and research activities. Incorporates a background in student recruitment outreach and tutoring to provide employers with proven organization and communications expertise.

EDUCATION

Honours Bachelor of Science, Specialist, Physics and Astrophysics
University of Toronto Scarborough, Toronto, ON
Expected to graduate May 2022
CGPA: 3.66

All India Senior Secondary School Certificate
Fahaheel Al-Watanieh Indian Private School
Graduated May 2018
Percentage: 90+ in Physics and Math, 86.6 Overall

TECHNICAL SKILLS

Languages: C++, Python, MySQL, BASIC.
Operating Systems: macOS, Windows, Linux.

PROJECTS

Distrianalysis

Created a Python Package named distrianalysis, that lets you input data and analyze the Gaussian or Binomial distributions arising from said data. It is available on PyPi for download.

AWARDS

- UTSC Dean's List Summer 2019
- UTSC Dean's List Fall 2020
- DPES Student Leadership and Excellence Award 2021

RESEARCH EXPERIENCE

Astronomy Research Project Academic Year 2021-22
Supervisor: Dr. Bryan Gaensler & Dr. Luke Pratley
Title: Reconstructing broadband spectropolarimetric signals using a novel method.

We carried out a small, original research project in the field of Radio Astronomy and Cosmic Magnetism. We implemented multiple methods like `RM CLEAN`, QU-fitting and the novel method, non-parametric QU-fitting using Python to reconstruct broadband signals from multiple active galactic nuclei (AGNs) and compare these methods.

University of Toronto Summer Work-Study Program Summer 2021
Supervisor: Dr. John R. Percy
Title: Time Series Analysis on Long Term Measurements of Variable Stars in GCs.

We carried out a small, original research project in the field of variable stars and stellar evolution under the University of Toronto Work-Study Program in the David A. Dunlap Department of Astronomy & Astrophysics. We carried out time series analysis, with existing software, on long-term measurements of variable stars in Globular clusters using data from the AAVSO and the ASAS-SN databases.

Undergraduate Research Project Summer 2021
Supervisor: Dr. Hanno Rein
Title: Simulating Transit Timing Variations of Exoplanets with REBOUND.

We carried out a small, original research project in the field of Exosolar planets and Transit Timing Variations (TTVs). We used the `REBOUND` Python Package to simulate the TTV data for TRAPPIST-1, by using N-Body simulations for the exoplanets of that system.

TEACHING EXPERIENCE

Teaching Assistant: MATA35, Calculus II for Life Sciences Winter 2021

Facilitated a 1-hour tutorial session each week for approximately 20 students including working through problems of assignments, administering quizzes and demonstrating key problem solving methods. Managed detailed record of students performance and attendance.

Teaching Assistant: PHYA11, Physics I for Life Sciences Fall 2020

Facilitated a 2-hour practical session each week for approximately 20 students including working through problems in small groups, working on lab activities and demonstrating key problem solving methods. Managed detailed record of students performance and attendance.

Physics Aid Center (PAC) Tutor Academic Years 2019-21

Helped first year students in PHYA10 and PHYA11 work through problems. Was available 3-6 hours per week throughout the semester.

PUBLICATIONS

- Percy, John R., and Gupta, Prateek. "Pulsating Red Giants in a Globular Cluster: 47 Tucanae." *Journal of the American Association of Variable Star Observers*, vol. 49, no. 2, in press. `https://app.aavso.org/jaavso/article/3789/`

PUBLIC OUTREACH

International Student Ambassador Winter 2020

Assisted the Office of Admissions and Student Recruitment in their outreach to applicants around the world. Acted as a friendly mentor that helps bridge the knowledge gap between expectations and reality when it comes to studying at U of T Scarborough.