SHISHIR SHETTY

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Experience

Summer Research Intern May 2023 to Aug 2023

Laser spectroscopy group at ACRHEM - University of Hyderabad

- Raman spectroscopy with applications in recycling and plastic sorting.
- Recording spectra of plastics, explosives (HEMs), with Raman probe and CW laser setup, data analysis and visualization of CCD data with python.
- Spectrum pre-processing methods and how to quantify their effectiveness.
- Using python to make a GUI based peak fitting program to speed up analysis.
- Using machine learning and statistical methods like K-Means, K-Nearest Neighbors, Multiple Linear Regression for clustering samples and quantification.
- Characterizing dark noise of several CCD spectrometers and studying the effect of Thermo-Electric cooling on dark noise.
- Presenting my progress once/twice a week in front of supervisor and PhD students which improved my presentation and speaking skills.

Core Skills

- **Python**: Pandas, Matplotlib, Numpy, Scipy, Seaborn, Sklearn (ML)
- MS Excel and **touch typing** (60-80wpm)
- Making effective and minimalistic powerpoint presentations
- **Fortran** (Basic)
- Sliders and Interactive plotting in python.
- **Languages**: English, Hindi, Kannada, Tulu (Native)

Education

Integrated MSc, Physics 2025
UNIVERSITY OF HYDERABAD
SGPA : 8.7 (aggregate)

Intermediate/+2, PCMCs 2020
Mahatma Gandhi Memorial College - Udupi
Percentage : 94% (overall) and 98.3% in core subjects

Matriculation (CBSE board) 2018
St Mary's English Medium School - Udupi
Percentage: 94.6% (2nd rank in the School)

Conferences and Public speaking

- Vigyanotsav 2023 (Science fest on campus): Prepared a science demo and presentation for high school students on "**Chaos theory and the double pendulum**" involving a physical model of magnetic chaotic pendulum and python simulation of double pendulum.
- Gave a presentation on "**Privatization of Space: NASA and SpaceX**" to a class of 70 as part of a project to improve communication skills.
- **ICFAST** Conference 2022: attended talks by distinguished profs from India and Japan.
- **Frontiers In Physics** Conference 2023: attended talks by professors from top colleges of India and poster making sessions by PhD students.

Extra-Curricular and Hobbies

- **Techno Club** Member: Club for students excited about electronics/physics DIY projects and craving some hands-on experience. Currently working on building a TEA Laser (nitrogen medium) which emits pulses of UV light. (based on a Scientific American article from 1970s) Our mentors : Prof. G Rajaram and Prof. P Prem Kiran
- Long distance cycling and events: Completed 24km time-trial event in 1 hour (organized by Mangalore Cycling Club)
- Speed solving Rubik's cubes (average under 20 seconds).
- Making sliders and interactive tools in python to enhance physics learning.
- Reading and discussing about history of Physics.