Yash Gurbani

B.Sc. (Research) in Physics

Indore, India
+91-8130594324
yg303@snu.edu.in

Education

2016 - 2020 **B.Sc. (Research)**, *Physics (Minor in English)*, Shiv Nadar University, Greater Noida.
CGPA: 7.99 (out of 10)

2013 - 2014 **Grade 12 *(Higher Secondary)***, *Ashasikiya Sanyogitaganj H.S School*, Indore.
Physics (96/100), Mathematics (92/100), 84% overall.

2011 - 2012 **Grade 10 (Secondary)**, *Shri Gujarati Samaj AMN English Medium School*, Indore, *CGPA: 9/10*.

Research Experience

07/19 - 06/20 **Final Year Thesis Project**, *"Associative Memory on Complex Networks"*,
with Dr. Syed Kamil and Dr. Santosh Kumar, SNU.

- We studied the Hopfield Model of associative memory on fully connected and Watts Strogatz networks to find how the network topology affects performance through numerical simulations.
- We found the small world networks achieve optimal performance for a fraction of wiring length, supporting the experimental evidence for small world characteristics in biological networks.

05/18 - 07/18 **Undergraduate Research Intern**, *"Efficiency enhancement & Tuning of Light Absorption in Organic Photovoltaic Cells"*, Semiconductor Physics Lab, SNU.

- Experimental techniques like spin coating, annealing, thermal deposition were used to successfully fabricated P3HT-PCBM and PTB7-Th:PC71BM organic solar cells.
- Further, characterization techniques like XRD, AFM, UV-Vis Spectroscopy, I-V measurement were used and various trials were undertaken to find the optimized D-A ratio and annealing temperature for the system.

03/18 - 05/18 **Experimental Project**, *"An Investigation of Leidenfrost Effect and Mechanics of Leidenfrost Drops on a Ratchet a Surface"*, with Dr. Aloke Kanjilal, SNU.

- Demonstrated and characterized the Leidenfrost effect for various surfaces.
- Further, the effect of surface topology was studied by levitating drops on various ratchet like surface geometries and observing the motion of droplets.

Teaching Experience

09/18 - 12/18 **Tutor, PHY101**, *Learning and Academic Support Center*, Shiv Nadar University.

- Student tutor for undergraduate course "Introduction to Physics" (PHY101), consisting of introductory Newtonian mechanics and thermodynamics.
- My focus was on helping the freshman students build intuition through problem solving exercises.

Notable Academic Projects

2020 **Type IA Supernovae as Standard Candles**, *Literature Survey and Project Report*, PHY418: Intro to Cosmology.

2020 **Statisical Physics of Spin Glasses & Their Applications to Neural Networks**, *Literature Survey & Project Report*, PHY302: Statisitcal Physics.

2018 **Solving the Schrodinger Equation in a given Potential Using Split-Step Fourier Method**, *Computational Project (Python)*, PHY106: Computational Physics.

2017 **Applying Fast Fourier Transforms to Images for Optical Character Recognition using MATLAB**, *Computational Project (MATLAB)*, PHY205: Waves & Oscillations.

Professional Experience

05/17 - 07/18 **Member, Admission Essays Review Panel**, *Admissions Team*, Shiv Nadar University.

- Recommended to be a part of the admissions team for reviewing and grading essays submitted by prospective applicants in their entrance exam SNUSAT -Shiv Nadar University Scholastic Aptitude Test.

2014 - 2016 **Lead Web Developer and Graphic Designer**, *HSchool Security Pvt. Ltd.*, Delhi.

- Responsible for designing content and developing websites and web applications for 8 clients.
- Major projects include designing a website for Leaders International School Qatar and Bachpan Play School Raipur, sub-branch of Bachpan Global School

Administrative Experience

2019 - (ongoing) **Founder and President**, *Local Committee - Noida, International Association of Physics Students (IAPS)*.

- I formed a Local Committee for the Noida region in association with IAPS (Mulhouse, France) which consists of 100 members.
- Responsible for heading research/ideation team and organizing School Day 2019 (an IAPS annual outreach event)in which 70 high school students from 5 schools in Delhi NCR were invited for a science exhibition on "Elements and Materials". LC Noida was awarded a grant of 365 euros from IAPS for organizing the event.
- Currently working to establish Association of Indian Physics Students (AIPS), a National Committee of IAPS in India.

2018 - (ongoing) **Vice President and Senior Advisor**, *Physics Society*, Shiv Nadar University.

- Responsible for organizing various talks, seminars, screenings, crash courses, discussions, and competitions that center around physics and are generally interdisciplinary in nature.
- Since August 2019, I was elected for the role of senior advisor for the society's operations.

02/19 - 06/20 **Vice President**, *Celestia Explora, SNU's Astronomy Club*, A Chapter of Students for the Exploration and Development of Space (SEDS) .

- Responsible for organizing stargazing nights, talks and events aimed to inculcate aptitude in astrophysics and astronomy in the university.
- Led the organizing team for World Space Week 2018 and worked on outreach events that aim to introduce basic astronomy concepts to underprivileged students in schools around the university.

Awards and Prizes

2019 **Accomplished Competitor**, *University Physics Competition*.

2019 **First Prize**, *Click: Photography Contest*, VisuallySNU, Photography Club.

2018 **First Prize**, *Technology and Business Quiz*, FACTion, SNU's Quizzing Club.

Grants and Scholarships

2018 **Opportunities for Undergraduate Research (OUR) Grant**.
Recieved a grant of INR 30,000 for the undergraduate research project "Efficiency enhancement & Tuning of Light Absorption in Organic Photovoltaic Cells" with the Semiconductor Physics Lab, Shiv Nadar University.

2016 **Tuition Fee Scholarship**, Shiv Nadar Foundation.
Received a 80% tuition fee waiver in School of Natural Sciences, Shiv Nadar University on the basis of academic merit.

Additional Activities

05/19 - 07/19 **Student Summer Residency Program**, Nehru Planetarium, New Delhi.

- Attended two months of summer school at Nehru Planetarium with seminars and invited lectures by eminent astronomers.
- Various topics like positional astronomy, basics of astrophysics, general relativity, cosmology and data driven astronomy were covered.

Skills

Programming	Python (Scientific Computing), FORTRAN and C
Academic	LaTeX, Origin, MATLAB, Office Suite, Linux
Web Design	HTML, CSS, JavaScript, WordPress CMS