Pranav Chandrashekar

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R⁶ ResearchGate GitHub LinkedIn

Skills

Programming Languages Python ∘ MATLAB ∘ C++ ∘ HTML / CSS / JavaScript
Software LabVIEW ∘ Igor PRO ∘ Blender ∘ LaTeX ∘ Microsoft 365
Languages English ∘ French ∘ Tamil ∘ Kannada ∘ Hindi

Research

Student Researcher
Apr 21 - Present
Gary Williams' Lab, Low Temperature Physics & Acoustics *UCLA Dept. of Physics & Astronomy*

- Built a phase-locked loop control circuit to drive a torsional oscillator used to probe the superfluid phase transition of rotating thin-films adsorbed on a cylindrical, multi-wall carbon nanotube substrate.
- Developed LabVIEW software to consolidate period measurements of torsional modes over a range of low temperatures below 2.17K, tested by running the experiment with liquid N_2 at 77K.
- Assembled a pipe network to transport Helium from the storage tank to main cryostat, and installed yellowjacket outlets to dewars.

Undergraduate Research Assistant
Aug 20 - Mar 21
Arisaka Lab, Neurophysics *UCLA Dept. of Physics & Astronomy*

- Collaborated with 30 interdisciplinary researchers to experimentally test a model proposed to explain how the brain reconstructs 3D allocentric space using 2D egocentric visual stimulation.
- Designed and constructed experimental chassis used to collect reaction-time data from over 40 subjects; Acquired measurements for collinear LED stimuli automated using Arduino and C++.
- Co-authored a paper to outline findings, available in preprint on bioRxiv (https://doi.org/10.1101/2022.02.28.482181).

Teaching Experience

Physics Tutor
Mar 23 - Present
Schoolhouse.world *Remote*

- Creating accessible and enjoyable physics education for students worldwide through live, peer-to-peer sessions held on Zoom.

Learning Assistant
Dec 21 - Jun 22
C.E.I.L.S. *UCLA Depts. of Mathematics/Physics & Astronomy*

- Taught "Physics for Scientists and Engineers: Mechanics" and facilitated remote discussions for 40 students in Winter 22.
- Taught "Calculus of Several Variables" and held in-person discussions and 1:1 meetings for 30 students in Spring 2022.
- Received evaluations from pedagogy heads and students, resulting in LA grade of 'A' from both classes.

Manager & Instructor
Jun 21 - Jan 22
Upsilon Lab *UCLA Dept. of Physics & Astronomy*

- Spearheaded a project sponsored by Dr. Seth Putterman to introduce undergraduate students to fluid mechanics leading up to solitary wave phenomena.
- Managed a diverse team of undergraduates, disseminating problem-solving techniques in acoustic and hydrodynamic systems; created 6 weekly learning modules using LaTeX covering axiomatic developments of relevant theory, homework problems, and resources for further study.

Education

Bachelor of Science, Physics
Physics GPA: 3.415
University of California, Los Angeles *Winter 2019 - 2023*

Projects

Observing Hydrodynamic Solitons
Jun 2021 - Jan 2023
Final Project *UCLA Acoustics Lab (180D)*

- Performed an experiment to characterize the length and time scales that permit solitary waves in a parametrically oscillating, rectangular waveguide; Single-handedly built plexiglass channel and driver (amplified loudspeaker) controlled by signal generator.
- Analysed 60fps videos of solitons using Python-based photogrammetry and image segmentation.
- Authored a pedagogical report developing the theory and showcasing results.

Computational Physics Portfolio
2021 - Present