Nilkantha Namdev Gholap

Science Educator | Science Communicator | Public Engagement & Outreach Specialist

nilkanthagholap1@gmail.com +91 97675 64423 Pune, Maharashtra, India

LinkedIn nilkanthagholap.github.io

PROFESSIONAL SUMMARY

Science educator and communicator with 3+ years of experience designing, delivering, and evaluating inquiry-based science and mathematics education programmes for teachers and students. Experienced in public engagement, curriculum development, teacher professional development, and science outreach within large-scale national initiatives. Strong background in physics and astronomy, with proven ability to translate complex scientific concepts into accessible learning experiences, including multilingual educational resources. Seeking roles in science communication, STEM education, public engagement, or research-based education programmes within universities, research institutes, museums, or NGOs.

PROFESSIONAL EXPERIENCE

Homi Bhabha Centre for Science Education (HBCSE), TIFR, Mumbai, *Project Scientific Assistant - B* 01/2023 – Present | Mumbai

Working on the Vigyan Pratibha Project, a national initiative creating inclusive teaching- learning spaces for science and mathematics within government school systems.

Key Contributions & Achievements

- Presented research posters at international conferences:
  - Investigating Pressure Waves in Railway Tunnels Using Smartphone-Based Sensors: A Student-Driven Approach - IUPAP-ICPE 2025, IIT Ropar
  - Addressing Misconceptions in Buoyancy through Inquiry and Experimentation epiSTEME- 10, Mumbai
- Contributed to the Marathi translation of Class 8 science booklets (ISBN: 978-81-963057-9-6; 978-81-963057-8-9)
- Translated four science communication articles for the Anandi newsletter

Roles & Responsibilities

- Translated and localised science learning materials from English to Marathi, improving accessibility for Marathi-medium students
- Enhanced curriculum materials through literature review, classroom observation, and feedback analysis, strengthening reasoning, hypothesis formation, and scientific argumentation
- Organised, facilitated, and observed teacher professional development workshops, engaging 250+ teachers across Maharashtra, Goa, and Gujarat
- Implemented experiment-based learning modules in 20+ government schools across urban and rural regions; conducted observations, prepared analytical reports, and delivered structured feedback
- Coordinated student camps, teacher workshops, and online seminars with subject experts
- Managed and maintained the Vigyan Pratibha WordPress website, including targeted plugin-level code modifications
- Maintained centralised records for six regional centres and contributed to improving standard operating procedures (SOPs) for data management
- Assisted in editorial workflows for curriculum publication and dissemination

Pi Jam Foundation, Pune, *Instruction Specialist* 12/2021 – 06/2022 | Pune

NGO delivering computer science education in government schools.

- Delivered and managed computer lab sessions in three Zilla Parishad schools
- Ensured consistent execution of Pi Jam Foundation's curriculum and lesson plans

- Collected and entered impact data for the Monitoring & Evaluation team
- Supported stakeholder coordination and school-level relationship management

EDUCATION

Master of Science (Physics) - CGPA: 9.22 / 10, 2017 – 2019 | Pune
Fergusson College (Autonomous), Pune
Savitribai Phule Pune University

Bachelor of Science (Physics) - 75%, 2014 – 2017 | Pune
Abasaheb Garware College, Pune
Savitribai Phule Pune University

TECHNICAL & PROFESSIONAL SKILLS

- Science communication & public engagement ●●●○○
- Teacher professional development ●●●○○
- Scientific writing & research dissemination ●●○○○
- Basic programming: Python, C, MATLAB ●●○○○
- Data analysis & record management ●●●●○
- Linux & Windows environments ●●●●○
- STEM education & inquiry-based learning ●●●○○
- Curriculum design & localisation (English-Marathi) ●●●○○
- Radio astronomy data analysis (CASA, IRAF) ●●●○○
- WordPress website management ●●●○○
- Astrophotography & observational astronomy ●○○○○
- Licensed HAM Operator (VU3PXE) ●●○○○

LANGUAGES

Marathi — native | **English** — fluent | **Hindi** — fluent

ADDITIONAL QUALIFICATIONS

Optical Engineering Specialisation (First Order Optical System Design), *University of Colorado Boulder (Coursera)* 2021
69%

AWARDS & EXTRACURRICULAR ACTIVITIES

Best Poster Award, *IUPAP-ICPE-2025* 2025

Best Exhibit Prize, Department of Physics Festival "Gravity", *Fergusson College* 2017

Participant, National Service Scheme (NSS)

RESEARCH PROJECTS

Constraints on Variable Chaplygin Gas Model from GW Merger Events 07/2021 – 09/2021
Astrophysics Fellow (Summer Research Fellowship Program) at SARSTEM,
- Observational data often provide the most stringent tests of established cosmological models.
- Type Ia supernova observations revealed the accelerated expansion of the Universe.

- Studied the Variable Chaplygin Gas model, which interpolates between a dust-dominated and a quintessence-dominated cosmological era.
- Constrained model parameters using Type Ia supernova and gravitational-wave observations across different redshifts.

Project Student - Giant Metrewave Radio Telescope (GMRT) 11/2019 – 04/2020

- Analysed 100 archival radio astronomy datasets using CASA
- Generated radio images using a modified imaging pipeline to optimise processing time
- Identified and reported previously unnoticed Radio Frequency Interference (RFI) present in legacy backend data
- Collaborated with GMRT engineers to investigate the origin of detected RFI artefacts

MSc Project - Radio JOVE Receiver Construction 2019

- Built and calibrated a Radio JOVE receiver from scratch using Jim Rowe's design
- Tuned the receiver at 20 MHz using a signal generator
- Gained hands-on experience in radio instrumentation and signal detection

PUBLICATIONS & POSTER PRESENTATIONS

Gholap, N. N., & Mhaskey, M. (2025). Investigating Pressure Waves in Railway Tunnels Using Smartphone-Based Sensors: A Student-Driven Approach. IUPAP-ICPE 2025, IIT Ropar 2025

Mhaskey, M., Chari, D., Navaneetha, G., Gholap, N. N., & Meena, S. (2025). Addressing Misconceptions in buoyancy through inquiry and experimentation. epiSTEME-10 2025, Mumbai 2025

SCIENCE OUTREACH & PUBLIC ENGAGEMENT

Volunteer, *IOAA 2025 (HBCSE, Mumbai)*

Invited Talk, *STEAMBOAT E22: पावसाळा*
Talk on rainy season as a part of STEAM Boat talk series

Volunteer, *Frontiers of Science (FoS) 2023 & 2025, TIFR Colaba*

Active member,
Centre for Citizen Science (CCS) - public stargazing, citizen science sampling, rural outreach

Co-organised, *Annular Solar Eclipse 2019 public event (optical, radio, UV observations)*

Science Exploratory Class Instructor Intern, *IUCAA Muktangan Vidnyan Shodhika (2017, 2018)*

Volunteer, *National Science Day exhibitions at IUCAA and GMRT*

INTERESTS

- Amateur astronomy, science popularisation, reading (astronomy & technology),
- Travelling, cycling, hiking, swimming, mobile photography, collecting oddities.