

Curriculum Vitae

PERSONAL INFORMATION

Shanmugha Balan
Undergraduate Researcher
Birla Institute of Technology and Science
Department of Physics
Pilani, 333031
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Homepage: <https://sbalan7.github.io/>
GitHub: <https://github.com/sbalan7>
Linkedin: <https://linkedin.com/in/sbalan7>

Nationality: Indian
Languages: English, Tamil, Hindi, French

EDUCATION

Aug 19 - Present **Birla Institute of Technology and Science, Pilani, India**
Integrated M. Sc. (Hons) Physics
B. E. (Hons) Electrical and Electronics Engineering

PROFESSIONAL EXPERIENCE

Jan 22 - Present **Research Student (Remote)**
University of Hawaii, Institute for Astronomy, Manoa, USA
Project: Reconstruction of Light Curves using Pan-STARRS Data
Advisor: Dr. Roger CC Lin

Oct 21 - Jan 22 **Research Intern (Remote)**
Space Technology Cell - Pune, Indian Space Research Organization (ISRO)
Project: Optimal Trajectory Determination for Lunar Landing Missions
Advisor: Dr. Dipti Patil

Apr 18 - Jun 18 **Summer Research Student**
Computational Systems Biology Lab, IIT Madras, India
Project: Graph Theoretical Analysis of Protein Networks
Advisor: Dr. Karthik Raman

PEDAGOGICAL EXPERIENCE

Jan 22 - May 22 **Birla Institute of Technology and Science**
Position: Teaching Assistant
Course: Nonlinear Dynamics and Chaos

TECHNICAL EXPERIENCE AND SKILLS

Survey Data Gaia DR2, Gaia EDR3, Gaia DR3, Pan-STARRS DR1
Programming Python, C, C++, MATLAB, Julia

WORKSHOPS ATTENDED

[Jul 2022](#) Gaia Symposium: DR3 and Beyond, IIA Bangalore, India
[Mar 2022](#) 40th Meeting of the Astronomical Society of India, IIT Roorkee, India
[Mar 2022](#) HPC Workshop on Radio Astronomy Data Analysis in the SKA Era
Jan 2020 Cisco Capture-The-Flag Workshop, BITS Pilani, India

PUBLICATIONS

Journal Publications

1. BHATTACHARYA, S., RAO, K. K., AGARWAL, M., BALAN, S., AND VAIDYA, K. A Gaia EDR3 search for tidal tails in disintegrating open clusters. *Submitted to MNRAS* (2022)

Poster Presentations

1. BALAN, S., RAO, K. K., VAIDYA, K., AGARWAL, M., AND BHATTACHARYA, S. Dynamical Evolution of Open Clusters using Gaia EDR3, July 2022

COURSES

Physics Classical Mechanics, Electromagnetic Theory, Optics, Quantum Mechanics, Non-linear Dynamics and Chaos, Statistical Mechanics, Computational Physics, Atomic and Molecular Physics, Nuclear and Particle Physics
Electronics Digital Design, Signals and Systems, Control Systems, Microprocessors and Interfacing, Electronic Devices, Microelectronic Circuits
Mathematics Multivariable Calculus, Linear Algebra, Complex Analysis, Probability and Statistics, Differential Equations
MOOCs Deep Learning Specialization, Applied Data Science Specialization, TensorFlow in Practice Specialization, Data Driven Astronomy

EXTRA CURRICULAR ACTIVITIES

The Radio Astronomy Club

- Jul 21 - Present **Coordinator** - managed the LIGO data analysis and SWAN Antenna projects
- Jan 21 - Present **Chief Editor** - edited articles for the blog

Physics Association

- Jul 21 - Apr 22 **Chief Editor** and Webmaster of the blog
- Apr 20 - Jul 21 **Events Coordinator** for the association during the technical fest of BITS Pilani
- Oct 19 - Apr 20 Volunteered for the events conducted by the club

Computer Vision Research Society

- Jan 22 - Present **Project Lead** - led the 3D Research Team
- Aug 21 - Jan 22 **Research Assistant** - part of the Action Recognition Team

Microsoft Learn Student Ambassadors

- Jul 21 - Apr 22 **Team Lead** - coordinated & managed the projects undertaken by the club
- Oct 19 - Apr 20 Volunteered for the events conducted by club

FreeLunch Magazine

- Feb 21 - Sep 21 **Senior Editor** - edited & authored articles for the science & technology section
- Jan 20 - Feb 21 **Technical Author** - wrote articles for the science & technology section