

S.ASHWIN BALAJI

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OBJECTIVE

To pursue graduate studies in the field of Loop Quantum Gravity at a University internationally reputed for its high standards of research and seek position in Research Group.

EDUCATION

National Institute of Technology, Calicut B170632EP, Engineering Physics, Bachelor in Technology Department of Physics	<i>July 2017 - Present</i> CGPA: 7.78 (6 sem avg)
Suguna PIP School, Coimbatore Central Board of Secondary Education (CBSE).	<i>June 2015 - March 2017</i> Overall Percentage: 81.6
AKR Academy, Tiruppur Central Board of Secondary Education (CBSE).	<i>June 2012 - March 2015</i> Overall Percentage: 93

RESEARCH INTERESTS

Interested in exploring and understanding the meaning of Time and causality, Primordial Cosmology, Quantum Foundations and role of Gauge Symmetries in Field Theories in the context of Loop Quantum Gravity and to contribute to current frontiers of Research in these areas.

RESEARCH EXPERIENCES

Renormalization of Gauge Theories and Gravity <i>Lattice Gauge Theory</i> The project aims at progressing towards a plausible explanation for Chiral Symmetry and Fermion Doubling using the concepts of Lattice Gauge Theory	Dr.Sreeraj, Assistant Professor, NITC <i>Project, Present</i>
N-Color Ashkin-Teller Model <i>Theoretical Condensed Matter Physics</i> The project aims at solving analytically the N-Color Ashkin-Teller Model using Mean Field Theory to compute the Critical Exponents of the System.	Dr. Rajesh Narayanan, Associate Professor, IITM <i>Summer Internship, April 2019 - July 2019</i>

SCHOLASTIC ACHIEVEMENTS

- Achieved **99.98%** percentile in **JEE Main 2017** among 1.2 million candidates nationwide.
- Recipient of Engineering Physics degree offered to select 15 students among 786,494 aspiring candidates Nationwide.
- Participant of INOI 2017 by qualifying ZIO/ZCO 2017.

TECHNICAL SKILLS

Programming Languages	C++, CUDA(C++) ,FORTRAN , Python, Julia
Softwares & Tools	MATLAB, Mathematica, \LaTeX , MySQL
Operating Systems	Windows, Ubuntu, CentOS
Note: For a comprehensive list, please visit my personal portfolio here.	

ACADEMIC/COURSE PROJECTS

WaveGuide-Mode-Visualizer

Computational Physics

Dr. Ram Ajor Maurya, Assistant Professor, NITC

Project, May 2020

This is a program to visualize the Electric and Magnetic Field in a Rectangular Waveguide for both TE Mode and TM Mode. It is written in Python 3.7 with 3D Visualization Package Mayavi and PyQt5 Package.

HiFi Run

Modelling and Simulation using Python

Dr. Archana, Ad-Hoc, NITC

Project, March 2020

This is a Retro based 2D Side-Scroller Game developed using Pygame package in Python Language implementing the Game Design Principles.

Economics Project - Qualitative Interview

Engineering Economics

Dr.Rekha, Ad-Hoc, NITC

Project, March 2020

The projects aims at interviewing CEO of a IIMB incubated Entrepreneur Company - Rekindle Automations to learn the Principles of Micro-Economics from a practical perspective.

Reading SPC Data

C Programming

Dr. M. K. Ravi Verma, Professor, NITC

Summer Project, May 2018 - June 2018

The project aims at translating MATLAB code to C code which can read Spectrum files(with an extension of **.spc**) generated by instruments during experiments to aid further Data Analysis.

Numerical Solution of ODE using FDM

Physics

Prof. Sourav Mondal, Academic Head, SPIPS

CBSE Project, 12th Standard

The projects aims at verifying analytic solution of a 2nd order Ordinary Differential Equation arising in the study of driven LCR Circuit, numerically using Finite Difference Method in C++ language.

CAMPUS ACTIVITIES

- Organizer and Core Committee Member for Science Outreach Activity by Cygnus : The Physics Association
- Class Representative for the Global Elective Course - *Modelling and Simulation using Python*
- Drafted the Lab Manual for the Course - *Computational Physics Lab*

WORKSHOPS AND CONFERENCES

- The 13th International LISA Symposium
- Quantum Information in QFT and AdS/CFT by IITG
- Vienna Summer School 2020 on Gravitational Quantum Physics
- Research Writing - Technical and Language Aspects Workshop by MHRD-TEQIP-III by NITC
- Entrepreneurship Awareness Camp by TBI and TEQIP-III by NITC

ONLINE COURSES

- **Julia Scientific Programming(Honors)** by University of Cape Town on Coursera.
- **3D Data Visualization for Science Communication** by University of Illinois at Urbana-Champaign
- **Data-driven Astronomy** by The University of Sydney on Coursera.

- **Deep Learning Specalization** by deeplearning.ai on Coursera.
- **TensorFlow in Practice Specalization** by deeplearning.ai on Coursera.
- **Machine Learning** by Stanford University on Coursera.
- **Parallel Computing with HPC Systems(Complete)** by Udemy.
- **Skepticism** by University of Edinburgh on Coursera

For complete list of courses completed online, please click [here](#).

To know what I'm currently planning to do, click [here](#).

EXTRA-CURRICULAR

- Active member in Physics Stack Exchange community for more than 2 years. [My Profile](#)
- Representative and Core Committee Member of the Skill Craft Academy; an NITC alumni initiative to build a soft and hard skills training center. My job includes:
 1. Conducting training for Python, Data Structures and Algorithms courses
 2. Taught Statistical Thermodynamics Course for 10+ Students.
 3. Teaching Assistant for C++ and SQL Course
 4. Preparing the Course Material (PPT, supporting code files, etc)
 5. Coordinating with Students and Faculty Members
 6. Mentoring Students in completing their curriculum projects, assignments, etc.
 7. Hosted a Virtual Internship Platform for 6 students in Deep Learning aimed to develop Data Intensive Apps with potential use in Education Industry during COVID-19 Lockdown.
 8. Core team member for Web Development Team. [Look at the website here.](#)
 9. Website Administration and Course Content Creator using Moodle and Wordpress.
 10. Developed CRUD Applications for custom tasks.
 11. Soft Skill Trainer
- Project for National Children's Science Congress 2010-2011 & 2011-2012 on Possibility of Agriculture in and around River Noyyal. This is a **Research project** during Schooling. [Click here.](#)
- Won many prizes in Quiz competitions; both inter-school and state-level during Schooling.

PERSONAL INTERESTS

- Make Presentations and Scientific Visualizations
- Designing Posters and Video Editing
- Blogger
- Full Stack Web Development(Django, FastAPI, VueJS)
- Play Harmonium/Piano (beginner)
- Cooking Vegetarian Dishes