Dhruv Kanti Bhanushali

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Education

Year	Institute - Board	CGPA / Percentage
2015 –	Indian Institute of Technology, Roorkee – *B. Tech. in Engineering Physics*	7.706 / 10
2012 – 2014	Jaipuriar School, Navi Mumbai – *Class XII (PCM + Computer Science)*	91.2%
2004 – 2012	Seventh-Day Adventist Higher Secondary School, Navi Mumbai – *Class X*	95.8%

Projects

Analysis of electron cloud densities in particle accelerators – *High-energy accelerator Physics*

Supervisor: Dr. Puneet Jain, *Associate professor, Department of Physics, IIT Roorkee*
The aim of the project is to analyze and formulate a theory explaining the density of the photoelectron cloud formed in the tube of a particle accelerator due to photons emitted by accelerated charges.

Augmented virtual keyboard – *Electronics and computer programming*

This projects aims to create a keyboard that can be projected onto any flat surface and then uses multiple sensors and computer vision to detect keystrokes.

It uses a grid of LED beams that reflect off the fingers to detect points of touch by IR cameras. OpenCV is used to identify the coordinates and the relevant touch signal is issued.

LecTut – *Android app development*

Developed an Android app of LecTut, the Intranet study portal of IIT Roorkee, used by faculty and students to share and collaborate on study material such as lecture slides and notes, to improve its accessibility from smartphones.

Backend: JSON API in Django (Apache + mod_wsgi)
Frontend: Client application on Android

Pilo (in progress) – *Node.js app development*

Pilo is a location-based messaging app that allows the user to drop messages at various places and then start an anonymous chat with people in that location, thus eliminating the need to go places for information.

Backend: JSON API in Express (Nginx + pm2) + Socket.IO for real-time updates
Frontend: Client application on Android

Nobel – *Node.js app development*

Nobel is an app that allows people to ping the central computer at IMG lab to see who else is present there. Upon request the app plays a tone on the computer and opens a two-way chat for the person to chat with IMG colleagues.

Backend: Authentication in Django (Apache + mod_wsgi) + views and controller in Express (pm2) + Socket.IO for chat
Frontend: Vanilla JavaScript

Mazverdagon (in progress) – *Node.js app development*

Mazverdagon is an app that aims to greatly simplify and enhance the process of recruitment of various hobby and specialized groups in IIT Roorkee, providing them with a unified feature-rich portal to organizers and participants.

Still in the early stages of planning

Amplio – *Python (Django) app development*

Amplio is an app that can be used to collect and debate upon feedback and opinions. It is currently a standalone application that will, after some enhancements, be merged with the Intranet portal of IIT Roorkee.

Backend: Django (Apache + mog_wsgi_py3)
Frontend: Django templates

Rethink – *Python (Django) app development and Windows Active Directory*

Developed an inventory management system, a directory system and a homepage for Rethink, the tinkering lab of IIT Roorkee. These apps work together to manage networked and non-networked resources in Rethink.

Backend: Django (Apache + mod_wsgi_py3)
Frontend: Django admin
Static: HTML + CSS + jQuery

IJAS2017 – *Website development*

Developed the website of Indo-Japan Accelerator School 2017, IIT Roorkee, in HTML and CSS with a bit of JavaScript. This website contains information about IJAS, previous' IJAS material and a form for registration.

Static: HTML + CSS + jQuery

Positions of responsibility

Information management group – *Hub coordinator*

Information management group is the elite computing group that created, maintains and upgrades the technological backbone of IIT Roorkee, including the intranet portal Channel-i and the internship/placement portal.

Indo-Japan Accelerator School – *Local organizing committee member*

Core member of the local organizing committee of IJAS2017, credited with building and maintaining the official website of the school as well as providing on-site support when the school is in session.

Skills

Software applications: Wolfram Mathematics, MathWorks MATLAB + Simulink, National Instruments Multisim
Computer languages known: Python and Java (including scientific libraries and popular frameworks)
Human languages known: English (SRW), Hindi (SRW), Kutchi (S), Marathi (SRW), Gujarati (SR)

Computing skills

Databases: MySQL, PostgreSQL and MongoDB
Python: Django and Django REST
Node.js: Express, Socket.IO and Adonis
Java: Swing and JavaFX
Android: Java logic and XML user interface

Courses taken

Physics courses

PHN-008: Electromagnetic theory
PHN-102: Analog and digital electronics
PHN-104: Thermal and statistical Physics
PHN-207: Mechanics and relativity
PHN-209: Mathematical Physics
PHN-211: Quantum Physics
PHN-204: Atomic, molecular and laser Physics
PHN-206: Elements of condensed matter Physics
PHN-208: Nuclear Physics and applications
PHN-210: Microprocessors and peripheral devices
PHN-214: Applied Optics

Related courses

MAN-001: Mathematics-I
MAN-010: Optimization techniques
EEN-112: Electrical sciences
MIN-108: Mechanical engineering drawing
PHN-103: Computer programming
PHN-205: Engineering analysis and design
MTN-105: Electrical and electronic materials

Achievements

- Ranked 3110 (GEN) among about 1.5 lakh (equivalent to 150 thousand) students in JEE Advanced.
- Successfully completed two apps overnight as a part of code.fun.do 2016 and 2017.
- One of the most prolific developers in IMG (and therefore, in IIT Roorkee).
- Scored top grades in all computing courses.

Interests

Apart from software, development I am also interested in Theoretical Physics. I like to unwind with a good film or TV episode. You'll find me plugged to my music almost all the time. I also like to read (fiction) and write (non-fiction).

References

Dr. Puneet Jain
Assistant professor,
Department of Physics,
IIT Roorkee

Dr. Rajesh Kumar
Assistant professor,
Department of Physics,
IIT Roorkee

Dr. Arumugam Paramasivan
Associate professor,
Department of Physics,
IIT Roorkee

Details:

For further information, please contact me via any of these social media:

GitHub Portfolio	https://dhruvkb.github.io/
GitHub	https://github.com/dhruvkb/
LinkedIn	https://www.linkedin.com/in/dhruvkb/
Facebook	https://www.facebook.com/dhruv.k.bhanushali/