

# Shreyas Bapat

<https://shreyasb.com>

b16145@students.iitmandi.ac.in | bapat.shreyas@gmail.com | (+91) 913 185 1172

## EDUCATION

### INDIAN INSTITUTE OF TECHNOLOGY MANDI

#### B.TECH. IN ELECTRICAL ENGINEERING

Expected Jun 2020 | Mandi, India

Cum. GPA: 7.34

- Awarded a Travel Grant to Attend Python in Astronomy 2019 in USA.

## LINKS

GitHub:// [shreyasbapat](#)

LinkedIn:// [shreyasbapat](#)

## CURRENT POSITIONS

### PYTHON SOFTWARE FOUNDN.

#### MANAGING MEMBER

- Voting Rights in PSF and Python Dev.

### DEBIAN ASTRO PURE BLEND

#### MAINTAINER, UPLOADER

- Python Packages Related to Astronomy

### EUROPEAN SPACE AGENCY

#### ORG ADMIN, MENTOR

- ESA Summer of Code in Space for EinsteinPy

## COURSEWORK

Deep Learning and it's Applications

Pattern Recognition

Artificial Intelligence

Data Structures and Algorithms

System Practicum

Communicating Distributed Processes

Computer Organisation

Signals and Systems

## SKILLS

### PROGRAMMING

Python • C++ • C • Flutter

### WEB DEVELOPMENT

Flask • Dash • CSS3 • HTML

Sphinx • Django

### TOOLS/MARKUP

pipenv • Docker • git • virtualenv

numba •  $\LaTeX$  • ReStructured Text

## TALKS

### PYTHON IN ASTRONOMY 2019

#### STScI, BALTIMORE, USA

- Python at the speed of light Simulating Relativity using EinsteinPy. - Looking at a black hole using Python.

### PYCON INDIA 2018

#### HICC, HYDERABAD, INDIA

- Through Python to the Stars

## AWARDS

KVPY Scholar 2016-17

Inter IIT Tech Meet - Bronze Medal

## WORK EXPERIENCE

### SIEMENS | SOFTWARE RESEARCH INTERN

Jun 2019 - Jul 2019 | Bengaluru, India

- Benchmarking performance of CycleGAN and MUNIT for Style Transfer Learning.
- Implementing Coverage guided Fuzzing for Deep Neural Networks.
- Development of modules for finding Coverage of a network and implementing GradCAM (Class Activation Maps).

### SIEMENS | SOFTWARE RESEARCH INTERN

Dec 2018 - Feb 2019 | Bengaluru, India

- Using generative models for test data generation. Exploring active learning for automatic data labelling.
- Implementing CycleGAN for style transfer of images.
- Implementing MUNIT for style transfer and comparison of both the approaches.
- Comparison of results between CycleGAN and MUNIT for same set of data.

### ANKAM | DEEP LEARNING INTERN

Aug 2018 - Nov 2018 | Mandi, India

- Implementing transfer learning to classify images of human eyes using ResNet50 for Diabetic Retinopathy Detection.

### POLIASTRO | SOFTWARE DEVELOPMENT INTERN

May 2018 - Aug 2018 | Mandi, India

- Implemented interactive 2D plotting, refactoring the plotting module to create backends and orbit simulation. Fixed hyperbolic orbits.
- Developed module being used by scientists in ESA (European Space Agency) to simulate orbits of various objects in space.

## PUBLICATIONS

### PROJECTHIKO 1.0 - THE VOICE AND INTERNET ENABLED SMART HOME | Co-AUTHOR

June 2017 | IJETS ISSN: 2394-3386

Cost Reduction in home automation. Used flask for handling backend. Implemented Speech Recognition.

## PROJECTS

### K-SPACE MRI RECONSTRUCTION | CS671 - DEEP LEARNING PROJECT

Feb 2019 - May 2019 | Prof. Aditya Nigam, IIT Mandi

- Achieved a very high PSNR, currently drafting paper for the results and algorithm.
- Reconstruction in k-space itself. No super resolution of images. This will make the MRI process a lot faster!
- Highly sub-sampled knee MRI data was used for the results. Packed the imaginary and real parts of Fourier space in a real value only.

### EGO-NONEGO VIDEO DETECTION | UNDERGRADUATE RESEARCH

Feb 2018 - May 2018 | Prof. Aditya Nigam, IIT Mandi

- Achieved an accuracy of 94.3%, the problem being solved first time.
- Video Classification on the basis of position of camera.
- Implemented FlowNetA to create Optical Flows by taking video frames. Used ResNet50 for classification.

### THE EINSTEINPY PROJECT | LEAD DEVELOPER

Dec 2018 - Present | Mandi, India

- Author of a Python Library, EinsteinPy - a library for computations related to general relativity and geodesic equations. Solving ODE's and writing unit tests etc.
- Project selected in ESA SOCIS 2019. Mentored a student throughout the summer, where European Space Agency paid the student a stipend of € 4000.
- Set up CI/CD, test automation and documentation for the project.

## POSITIONS OF RESPONSIBILITY

### CO-ORDINATOR | SPACE TECHNOLOGY AND ASTRONOMY CELL

June 2017 - May 2018 | Mandi, India

Awarded as Best SnTC Coordinator for 2018-19.