Ankur Shukla				163310004	
Geoinformatics and Resources Engineering				M.Tech.	
Indian Institute of Technology Bombay				Male	
Specialization: Geoinformatics and Natural Resources Engineering				DOB: 23-10-1991	

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2018	9.52
Undergraduate Specialization : Electrical Engineering				
Graduation	Uttar Pradesh Technical University	Kamla Nehru Institute of Technology, Sultanpur	2014	72.00
Intermediate/+2	ISC	The Modern School	2010	91.50
Matriculation	ICSE	The Modern School	2008	92.60

Areas of Interest

Image Processing	Machine Learning	Dimensionality Reduction	Spatial Data Analysis	GIS	FOSS

Work Experience

Assistant System Engineer - Trainee | *Tata Consultancy Services Ltd.* | *[Dec '14 - Sep '15]*
- Developed a **Java-based ETL testing tool** for checking the integrity of data transfer between Teradata & Hive
- Implemented **Map/Reduce** and **Hive queries** as a part of the tool development on a **Hadoop cluster**

Open Source Contributions

SPark – Open Source Smart Parking using pgRouting and IoT | *[Oct '16 – Jan '17]*
- Web app selected among the **best papers presented** at FOSS4G ASIA 2017 held at IIIT Hyderabad
- **Developed** an open source web application in a 3-member team as a smart parking solution
- **Coded the Backend, Mapping Interface** and Device to Server Communication of the app
- Technologies used: **Django**, **OpenLayers** API, **IoT** (Arduino Uno)

Contraction by Area - Extension of pgRouting Contraction framework | *[May '17 - Present]*
- Resolving the problem of handling large graphs by reducing the graph storage space for routing problems
- Contributing in developing & documenting code for contraction by area functionality
- **18 pull requests merged** on the main pgRouting Github repository

Publication

Journal of Spatial Information Research | *Final Manuscript in Progress*
- **Title**: SPark - an Open Source Smart Parking Application using Internet of Things & pgRouting
- **Authors**: *Ankur Shukla, Rajat Shinde, Surya S. Durbha*
- The paper describes the **architecture & methodology** of the SPark web application in detail

Projects & Seminar

Dimensionality Reduction in Hyperspectral Images | *M. Tech. Thesis* | *[Jul '17 - Present]*
- **Implementing Deep Learning Autoencoder** for dimensionality reduction using **TensorFlow**
- **Analysing** linear & non-linear techniques for dimensionality reduction & visualization
- Expecting an increase in performance by using GPU driven **HPC** based approach

Curvelet & Contourlet Application in Remote Sensing | *M. Tech. Seminar* | *[Jan '17- May '17]*
- **Studied** Curvelet & Contourlet transform applications in remote sensing imagery classification & segmentation
- **Proposed** a method for temporal segmentation of multi-temporal satellite data using 3D Curvelet Transform

Analysis of ANFIS and Random Forests on Distributed Architecture | *Course Project* | *[Aug '17]*
- Investigating the comparative performance of ANFIS and Random Forest for mineral resource potential modelling
- Testing the relative performances on a **2-machine cluster** using **Apache Spark** & **DeepLearning4j**

Facial Expression Recognition using CNN │ *Course Project* [Jan '17-May '17]
- Realised two architectures to classify **Extended CKP** dataset images into 7 different facial expressions classes
- Obtained test data accuracy of **60% for 5-6 epochs** with **CNN** and **40% for 2 epochs** with modified **GoogLeNet**
- **Pre-processed** image dataset using **Canny edge detector** & **bi-linear interpolation** applied in Python

GUI for Frequency Domain Visualization of Satellite Image │ *Course Project* [Oct '16- Nov '16]
- **Designed** a GUI for frequency domain visualization of satellite images using 2D Fast Fourier Transform
- Applied dynamic visualization for application of Butterworth and Gaussian low pass filters

Genetic Algorithm Dimensionality Reduction Implementation │ *Course Project* [Apr '17 – May '17]
- Developed code for dimensionality reduction of Indian Pines dataset using **Genetic Algorithm** in Python
- Obtained a reduction of 220 band dataset to 20 most relevant bands for improved classification

Positions of Responsibility

Company Coordinator │ *Placement Cell, IIT Bombay* [Apr '17 - Present]
- **Part of a 90+ member team**, responsible for the placement of over 1600 students in the institute
- **Targeted 50+ new potential recruiters** consisting of many Indian & foreign based organizations
- Coordinating with PMs, DPCs at different levels for smooth conduction of the placement process
- **Managing** the recruitment processes of **50+ companies** of various sectors

Teaching Assistant │ *CSRE, IIT Bombay* [Aug '16 - Present]
- Developing a **RESTful framework** for **Virtual Satellite Image Processing Lab** web application using Django & **GDAL**
- Responsible for development and management of Satellite Image Processing **Lab Github page**
- **Assisting** *Prof. B. K. Mohan* in conducting Satellite Image Processing Lab for 24 students
- Conducted training sessions for Image Processing using MATLAB, ERDAS and Python
- **Mentored** M. Tech. students in efficient implementation of course projects

Co-Editor │ *DrishtICONe - KNIT Newsletter* [May '13 – May '14]
- **Led a 50+ member team**, responsible for publication & distribution of monthly newsletter of the institute
- **Conceptualized** *Voice of KNIT, Click of the Edition* columns

Technical Skillset

• **Languages**	Python 2.7/3.5, JAVA 7, C++, Javascript
• **Frameworks**	Django, OpenLayers 3.0, TensorFlow
• **Software**	MATLAB 2015b, ERDAS, ArcGIS, QGIS
• **Tools**	PostgreSQL, pgRouting, Git

Key Courses

Advanced Methods in Satellite Image Processing	Foundations of Machine Learning	Principles of Remote Sensing
Natural Resources Potential Modelling*	Principles of Geographic Information Systems	

*Running Course

Scholastic Achievements
- **Rank 5** among CSRE M. Tech batch of 2016-18
- **Lean Six Sigma Green Belt Certified** from KPMG
- **99.16 percentile** out of **0.12 million** candidates in GATE (EE) 2016
- **City Rank 30** in 6th National Cyber Olympiad 2007

Extra-Curricular Activities
- Secured **1st position** in 'Ashwamegh', a group discussion competition organized by ISTE, KNIT Sultanpur
- **Poem** titled '*Dekho Ram Naam me Khoye Hanuman Hai*' **published** in Hanumat Kripa Sandesh
- **Media Team Head** for **Tvaran '13 National Level Sports Meet**, KNIT Sultanpur
- Planned and executed various literary events as an **Executive of Literary Council**, KNIT Sultanpur
- Managed various institute level events and activities as an **Executive of Cultural Council**, KNIT Sultanpur