



Education

Master of Technology – Remote Sensing & GIS

Specialization: Satellite Image Analysis and Photogrammetry

Thesis: Object Oriented CNNs for Automated Feature Extraction from Satellite Imagery

Indian Institute of Remote Sensing (IIRS),
Indian Space Research Organization (ISRO),
Dehradun, Uttarakhand

Graduating June 2021

CGPA: 8.24/10

Bachelor of Technology – Computer Engineering

Electives: Digital Image Processing & Artificial Intelligence

Major Project: Machine Learning and NLP based Text Classification for Document Summarization

Chandubhai S Patel Institute of Technology,
Charotar University of Science and Technology (CHARUSAT) (NAAC “A” grade),
Anand, Gujarat

Graduated, May 2019

CGPA: 9.62/10

Skills

- Statistics, remote sensing data analysis, aquatic remote sensing
- Satellite Image Processing – SNAP, ERDAS, ENVI, QGIS, e-Cognition
- Google Earth Engine
- Machine Learning & Deep Learning for Remote Sensing
- Programming – Python, C, C++, JAVA, R
- Image Processing (OpenCV), Natural Language Processing (NLTK), web scraping (scrapy)
- Machine learning – Pandas, sklearn
- Deep Learning – Tensorflow, Keras
- Software & Web Development – HTML 5, CSS 3, Bootstrap 3.3, PHP 4, Javascript, DB-My SQL
- Google Cloud, deployment and maintenance
- Version Control – GitHub, BitBucket
- Project/Team Management

Work Experience

- **Machine Learning Intern** *Oct 2020 – Present (remote)*
Scanta, San Francisco, CA
 - Researching and developing NLP based solutions for ChatBot security
- **Applied Research Intern (Machine Learning & NLP)** *Dec 2018 – June 2019 (7 mos)*
Centre for Indian Language Technology (CFILT) Lab, Indian Institute of Technology, Bombay | Guide: Prof. Ganesh Ramakrishnan
 - Automated laborious and manual task of feedback categorization which earlier used to take a few days
 - Sampled more than 5 million tuples of textual data, developed algorithm for sentence pair similarity
 - Lead a team of 4, managed development & deployment, oversaw the client interaction and recruitment process
 - Served as student mentor to incoming interns at IITB.
- **Remote Sensing Research Intern** *Jul 2018 – Aug 2018 (6 weeks)*
Remote Sensing and Spectroscopy Lab, University of Georgia, GA, USA | Guide: Dr. Deepak Mishra | CyanoTRACKER – NSF Funded Project
 - Developed tool to fetch potential CyanoHAB locations based on tweets – now being used daily in CyanoTRACKER
 - Developed GEE based dashboard for water quality analysis for Sentinel-2 & Sentinel-3
 - New approach for Rayleigh correction in GEE for Level-1 Sentinel-3 data
 - Continued research post internship: CyanoHAB monitoring and detection for Indian water bodies
- **Full Stack Web developer, SEO Specialist and Creative Content Writer** *Aug 2017 – Jan 2018 (5 mos)*
KickStart Solutions LLP, Vadodara
 - Full Stack Web Development in Django and HTML + CSS stack
 - Search Engine Optimization (AdWords) and SPAs; Robotic Process Automation
 - Proofreading, technical reviewing, content writing

Positions of Responsibility

- **Open Source Project Mentor** Oct 2020 – Present
Developer Student's Club, Dhirubhai Ambani Institute of Information Technology, Gujarat
 - Mentoring 20 undergraduate and graduate students pan India on my open source projects.
 - Domains: Deep Learning, Satellite Image Processing, Machine Learning, NLP, Web Development, Google Cloud
 - Tech/Tools stack: Python, HTML, CSS, Bootstrap, GDAL, Rasterio, NLTK, Tweepy, Numpy, Pandas, OpenCV
- **Student Mentor** Mar 2019 – Present
Various Institutes
 - Mentoring/Mentored at: IIT Bombay, IIRS-ISRO, Guru Nanak Dev University, Baroda High School O.N.G.C.
 - Mentoring students on Python, Satellite Image Processing, Machine Learning, Remote Sensing Applications, NLP
- **Founding Member and Mentor** Nov 2011 – Present
Astronomy Club, Baroda High School (O.N.G.C)
 - [Affiliated by Astronomers Without Borders](#)
 - Conducting celestial observations, handling telescope, delivering lectures on High School Astronomy & Cosmology

Publications

- Maniyar, C.B., Kumar, A., Mishra, D.R. 2020. **Continuous Monitoring and Assessment of Cyanobacterial Harmful Algae in Indian Inland and Estuarine Waters.** (Ready to be submitted, Target Journal: *Environmental Pollution*)
- Maniyar, C.B., Kumar, A. 2020. **Generative Adversarial Network for Cloud Removal from Temporal Optical Satellite Imagery.** *Remote Sensing Letters* (Under review)
- Maniyar, C.B., Kumar, A, Mishra, D.R. (2020). **Cloud Based Approach for Continuous Monitoring and Assessment of Inland and Estuarine Water Environments using Sentinel-3 OLCI data.** *Recent Advances in Geospatial Technology and Applications* (pp. 151-157). Dehradun: Indian Society of Remote Sensing
- Maniyar, C. B., Bhatt, C. M., Pandit, T. N., & Yadav, D. H. (2019). **CHEERBOT: A Step Ahead of Conventional ChatBot.** *Next-Generation Wireless Networks Meet Advanced Machine Learning Applications* (pp. 306-322). IGI Global.

Conference Presentations

- Maniyar, C.B., Kumar A. 2020. Generative Adversarial Network for Cloud Removal from Temporal Optical Satellite Imagery. **SoCProS 2020: International Conference on Soft Computing for Problem Solving**, Dec 18-20, 2020, Indian Institute of Technology, Indore.
- Maniyar, C.B., Kumar, A., Mishra, D.R., 2020. Cloud Based Approach for Continuous Monitoring and Assessment of Inland and Estuarine Water Environments using Sentinel-3 OLCI data. **ISRS National Seminar**, March 2, 2020, Indian Institute of Remote Sensing, Dehradun, Uttarakhand, India
- Kumar, A., Maniyar, C.B. and D.R. Mishra. 2019. A cloud-based approach for continuous monitoring of cyanobacterial harmful algal blooms using Sentinel 3-OLCI data. **ASPRS-PECORA21:ISRE38**, October 06-11, 2019, Baltimore, Maryland, USA

Relevant Projects

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| <ul style="list-style-type: none">• Cloud Removal from Sentinel-2 Imagery using Conditional GANs
<i>Apr 2020 – Jun 2020</i>
VIEW DETAILS | Using the pix2pix conditional GAN architecture with a novel augmented single-scene training approach on solely optical data to learn the mapping of a cloudy image to its cloud-free counterpart | <i>Python, CNN, Deep Learning, Keras, Satellite Image Processing</i> |
| <ul style="list-style-type: none">• Supervised Classification of Satellite Images using Spectral Modulation
<i>Feb 2020 – Present</i>
VIEW DETAILS | Attempting supervised classification without using any actual learning algorithms. A modulation function is defined and each pixel is classified using its modulation pattern. Efficient in terms of time and resources w.r.t ML/DL. | <i>Python, GDAL, numpy, spectral modulation</i> |
| <ul style="list-style-type: none">• Satellite Image Processing for Feature Identification - Detecting Water Bodies using Water Indices
<i>Nov 2019 – Dec 2019</i>
VIEW DETAILS | Using Sentinel 2, level 2A images to implement different indices such as NDWI for vegetation and water-bodies, NDCI, Chl-a to detect and assess the quality of water-bodies | <i>Python, gdal, rasterio, geopandas, QGIS, Image masking, Image kernel processing</i> |

<ul style="list-style-type: none"> Text Classification and Context Mining for Document Summarization Deep Learning aided text alignment <i>Dec 2018 – Jun 2019</i> VIEW DETAILS 	Categorically summarizing responses into a well formatted document by text classification and NLU for context mining. Exercising weak supervision over Wikipedia Articles and Talks to achieve contextual text alignment. Sentence pair similarity algorithm and Keyword based context mining algorithm.	<i>Python, BERT, NLP, word embedding, Machine Learning, Django</i>
<ul style="list-style-type: none"> CyanoTRACKER CyanoKhoj Protecting water bodies around the world from harmful algal blooms <i>Jul 2018 – Present</i> VIEW DETAILS VIEW DETAILS VIEW DETAILS 	<ol style="list-style-type: none"> Real time map marker based on tweet location and keywords Sentinel 3 Satellite Imagery Dashboard on GEE for worldwide CyanoHAB detection Pine Forest Mortality Rate prediction from various VIs subject to probable state change 	<i>Python, Twitter API, JavaScript, Google Earth Engine, SNAP, CODA (ESA)</i>
<ul style="list-style-type: none"> CHEERBOT (ML, NLP) <i>Sep 2017 – Jun 2018</i> VIEW DETAILS 	A chatbot that analyzes the user's sentimental state using text analysis, voice analysis and facial expression, and strikes up a cheerful conversation if the user is sad	<i>Python, NLP, NLTK, Voice Analysis, Machine Learning</i>
<ul style="list-style-type: none"> CentralEased (ML, Face Recognition) <i>Feb 2018</i> VIEW DETAILS 	An attempt to create a centralized database using machine learning over all existing databases of a person's information, based on his/her face picture as ID/ Primary Key	<i>Python, Flask, OpenCV, HTML, CSS, Machine Learning</i>
<ul style="list-style-type: none"> Management Systems as Web Apps <i>Feb 2017 – Apr 2017; Jan 2018</i> VIEW DETAILS VIEW DETAILS 	<ol style="list-style-type: none"> Developed a Seminar Hall Booking System for CHARUSAT university Developed prototype for Online Transcript Management/Acquisition System for Indian universities 	<i>HTML, CSS, Bootstrap, PHP, JavaScript</i>

Awards and Achievements

- Selected for Bachelors' final year project at U.R. Rao Satellite Centre (URSC - ISAC), ISRO (Bangalore)
- Core Team Member – Developers Student Club run by Google, CHARUSAT
- Editor in Chief – 'The Quill', CHARUSAT's university magazine
- Awarded merit based academic scholarships
 - ₹ 40,000: CHARUSAT Bachelors' First Year (Institute Rank 1)
 - ₹ 40,000: CHARUSAT Bachelors' Second Year (Institute Rank 1)
 - ₹ 32,000: Golden Jubilee Fellowship, IIRS Masters' Semester 1 (Department Rank 1)
 - ₹ 40,000: Golden Jubilee Fellowship, IIRS Masters' Semester 2 (Department Rank 1)