Chintan B. Maniyar

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EDUCATION

PhD (NASA FINESST) – Ocean Color Remote Sensing (GPA 3.6/4.0*) *Aug 2021 – May 2026*
Emphasis: *Global Water Quality – Harmful Algal Blooms, Biophysical & Bio-optical Modelling, Geo-AI*
Department of Geography, The University of Georgia at Athens (UGA), GA, USA

Master of Science – Artificial Intelligence (GPA 3.6/4.0*) *Jan 2022 – May 2026*
Thesis: "*Modelling Sea Surface Salinity using Remote Sensing and Spatially Explicit Machine Learning*"
Institute of Artificial Intelligence, The University of Georgia at Athens (UGA), GA, USA

Master of Technology – Remote Sensing & GIS (GPA 3.7/4.0) *June 2019 – July 2021*
Thesis: "*Automated Feature Extraction from High Resolution Satellite Imagery using Object-based Fully Convolutional Networks and Cyclical Learning*" [Thesis Link]
Indian Institute of Remote Sensing (IIRS), Indian Space Research Organization (ISRO), India

Bachelor of Technology – Computer Engineering (GPA: 4.0/4.0) *June 2015 – May 2019*
Thesis*: "Machine Learning based Text Classification for Document Summarization"* [Project Report Link]
Charotar University of Science and Technology (CHARUSAT), Gujarat, India

SKILLS

- Programming: Python, C, C++, R
- Photopigment extraction (Chl-a, Phycocyanin)
- Equipment: Spectrophotometer, Sonicator
- ArcGIS, SNAP, ERDAS, ENVI, QGIS, GDAL
- Machine/Deep Learning: fastai, sklearn, keras, pytorch
- Remote Sensing, Statistics, Data Analysis, Google Earth Engine
- Software/Web Development: PHP, MySQL, JavaScript
- Web Scraping, Version Control – GitHub & BitBucket

PROFESSIONAL AND RESEARCH EXPERIENCE

Graduate Research Assistant/NASA Future Investigator *Jan 2024 – Present*
Remote Sensing and Spectroscopy Lab, University of Geogia, GA, USA
- Developing Physics-based deep learning algorithms for CyanoHAB monitoring using satellite + *in-situ* data
- Analytical spectrometric extraction of phycobiliprotein, developing public health risk maps for advisories
- Managing CyanoTRACKER website development, and guiding MS students for their thesis research

Machine Learning Systems Design Intern *May 2024 – Aug 2024*
"ESRI" – Environmental Systems Research Institute, CA, USA
- Developed and deployed a scalable multimodal Chatbot using RAG-LLM + FAISS, trained on StoryMaps documentation, allowing customers to ask their specific questions instead of reading through the whole text
- Contributed on the translate-api, enabling StoryMaps accessibility (200K + users) in 39 global languages

Machine Learning Systems Design Intern *May 2023 – Aug 2023*
"ESRI" – Environmental Systems Research Institute, CA, USA
- Worked with the StoryMaps (200K+ users) product & backend team, prototyping AI-based UI-UX features
- End-to-end systems: geo-recommender systems, semi-supervised topic labeling, automatic image captioning

High Performance Computing Intern *Jun 2022 – Aug 2022*
United States Dept. of Agriculture - ARS/Mississippi State University, MS, USA
- Using deep learning and proximal sensing to identify invasive turf weeds from RGB turf images
- Biophysical irrigative modelling and yield prediction of tomato and melon using UAV hyperspectral images

Remote Sensing AI Engineer (Contract) *May 2021 – July 2023*

BeZero Carbon, London, UK

- Live Forest Monitoring and change detection, time series decomposition and satellite image super-resolution

Machine Learning Intern *Oct 2020 – Feb 2021*

Scanta, San Francisco, CA, USA

- Adversarial learning on GPT-2 based website Chatbot, to enhance in-website chatbot security

Applied Research Intern (Machine Learning & NLP) *Dec 2018 – Jun 2019*

Language Lab, Indian Institute of Technology, Mumbai, India

- Automated laborious and manual task of text categorization, from ***3 days to 30 mins*** using ML/NLP
- Sampled 5 million tuples of textual data, led a team of 4, oversaw client interactions and recruitment

Remote Sensing Research Intern *Jun 2018 – Aug 2018*

Remote Sensing and Spectroscopy Lab, University of Georgia, GA, USA

- Data mining and analysis of remote sensing, location, and social media data within CyanoTRACKER
- Developed Google Earth Engine dashboards for global water quality analyses using Sentinel 2/3 imagery

TEACHING EXPERIENCE

Graduate Teaching Assistant *Aug 2021 – Dec 2023*

University of Georgia, Athens, GA, USA

- *Fall 2024:* GEOG 6593: Geospatial Semantics and Geo-Text Mining** [Syllabus]
- *Spring 2023:* GEOG 6921: Advanced Geospatial Artificial Intelligence**; [Syllabus]
- *Fall 2023*: GEOG 6920: Geospatial Artificial Intelligence**; [Syllabus , Student Feedback]
- *Fall 2022/Spring 2023*: GEOG 1111L: Physical Geography Lab*; [Syllabus , Student Feedback]

*served as primary instructor

**served as co-instructor; helped in developing/designing the course

AWARDS AND ACHIEVEMENTS

7. **1 of 53 global recipients** of the three-year "*NASA FINESST Grant (2023 Cohort)*" worth **$150,000** for my PhD research on AI-based inland and coastal water quality monitoring for Harmful Algal Blooms
6. Recipient of the "*UGA-Geography Summer Research Award*" worth $2,000 to carry out field research at Lake Okeechobee, FL for CyanoHAB monitoring – May 2025
5. Recipient of the "*Outstanding Teaching Assistant Award*" for my teaching service at UGA-Geography during Aug 2021 – Dec 2023
4. **1 of 24 global recipients** of *IOCCG's "Ocean Optics and Ocean Color Science" Summer Lecture Series* Fellowship, 2022, held in Villerfranche-sur-Mer, France
3. Awarded *"Best Mentor"* **among 30 mentors nationwide** in India, for mentoring 20 undergrad and grad students on various Software Development/Image Processing/AI Projects during the Fall of 2020
2. *"UGA's Graduate Student Travel Award"* worth $700 in Summer 2024, for presenting my PhD research at IGARSS 2024, in Athens, Greece
1. Merit-based Academic Scholarship Awards in India worth $3,070 – July 2016 through May 2021

PUBLICATIONS

9. **Maniyar, C. B.**; Raviprakash, K.; Kumar, A.; Seferian, M. A.; Fiorentino, I.R. and Mishra, D.R. (2025). Low-Cost System to Support and Expand CyanoHAB Monitoring with New-Gen Ocean Color Satellites. *ACS Environmental Science and Technology, Water*. https://doi.org/10.1177/27539687251357020
8. **Maniyar, C. B.**; Yan, X.; Mai, G.; Srivastava, D.; Samiappan, S.; Oliazadeh, A.; Kumar, A. and Mishra, D. R. (2025). Artificial Intelligence in environmental remote sensing: Progress, way forward and key considerations. *Progress in Environmental Geography, 4*, 3. https://doi.org/10.1177/27539687251357020 [invited paper]

7. **Maniyar, C. B.**; Kumar, M. and Mai, G. (2025). Feature-Augmented Deep Networks for Multiscale Building Segmentation in High-Resolution UAV and Satellite Imagery. *arXiv preprint* https://doi.org/10.48550/arXiv.2505.05321CoCo
6. Kumar, Abhishek; **Maniyar, C. B.**; Fiorentino, I and Mishra, D. R. (2025). Remote sensing of cyanobacterial harmful algal blooms: Current trends and future directions. *Progress in Environmental Geography, 4*, 1. https://doi.org/10.1177/27539687251320671 [invited paper]
5. **Maniyar, C. B.**; Rudresh, M; Callejas, I. A.; Osborn, K; Lee, C. M.; Jay, J; Phillips, M; Auil Gomez, N; Cherrington, E. A.; Griffin, R.; et al. (2023). Spatio-temporal Dynamics of Total Suspended Sediments in the Belize Coastal Lagoon. *Remote Sensing, 15*, 5625. https://doi.org/10.3390/rs15235625
4. **Maniyar, C. B.**; Kumar, A. & Mishra, D.R. (2022). Continuous and Synoptic Assessment of Indian Inland Waters for Harmful Algae Blooms. *Harmful Algae, 111*, 102160. https://doi.org/10.1016/j.hal.2021.102160
3. **Maniyar, C. B.** & Kumar, A. (2021). Generative Adversarial Network for Cloud Removal from Optical Temporal Satellite Imagery. *Soft Computing for Problem Solving* (pp. 481-491). Springer. https://doi.org/10.1007/978-981-16-2712-5_39
2. **Maniyar, C.B.** & Kumar, M. (2021). Deep Learning based Improved Automatic Building Extraction from OpenSource High Resolution Unmanned Aerial Vehicle (UAV) Imagery. *Unmanned Aerial Systems in Geomatics* (pp. 51-66). Springer. https://doi.org/10.1007/978-3-031-19309-5_5
1. **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 http://doi.org/10.4018/978-1-5225-7458-3.ch013

OCCASSIONAL PEER REVIEW SERVICE

7. *International Journal of Applied Earth Observation and Geoinformation,* Elsevier
6. *ISPRS Journal of Photogrammetry and Remote Sensing,* Elsevier
5. *Scientific Reports,* Springer Nature
4. *Scientific Data,* Springer Nature
3. *International Journal of Remote Sensing,* Taylor & Francis
2. *Frontiers in Environmental Science,* Frontiers
1. *The Journal of Life and Environmental Sciences*, PeerJ

COMMUNITY SERVICE

Founding Member and Mentor *Nov 2011 – Present*

Astronomy Club, Baroda High School (O.N.G.C), Gujarat, India

- Affiliated with Astronomers Without Borders
- Conducting celestial observations, handling telescope, delivering lectures on Astronomy & Cosmology

Open-Source Project Mentor *Oct 2018 – Aug 2021*

Developer Student's Club, Dhirubhai Ambani Institute of Information Technology, Gujarat, India

- Mentored 20 undergraduate and graduate students pan India on my open-source projects.
- Domains: Machine/Deep Learning, Satellite Image Processing, NLP, Web Development, Google Cloud

CONFERENCE PRESENTATIONS

29. Maniyar, C.B., Kumar, A., Raviprakash, K., Seferian, M., Fiorentino, I., Mishra, D.R., "Low-cost Sensor to Strengthen CyanoHAB Monitoring with New Gen Ocean Color Satellites for Underrepresented Regions" *ASPRS Mid-South Regional Conference at ORNL*, Oak Ridge, TN, April 2025 – **(Best Paper Award)** [PPT available on request]

28. Kumar, A., **Maniyar, C.B.**, Fiorentino, I., Mishra, D.R., "High-Frequency Monitoring of Cyanobacterial Harmful Algal Blooms in Large Inland Waters Using Geostationary Satellite Data" *American Geophysical Union (AGU) Fall Meeting 2024,* Washington D.C., USA, December 2024 [AGU Abstract ; PPT available on request]
27. **Maniyar, C.B.**, Raviprakash, K., Kumar, A., Mishra, D.R., "Cyanosense 2.0: Low-cost Wireless Sensor Network for Continuous & Real-time Monitoring of Cyanobacteria Harmful Algal Blooms in Freshwater Lakes" *American Geophysical Union (AGU) Fall Meeting 2024,* Washington D.C., USA, December 2024 [AGU Abstract ; Poster available on request]
26. **Maniyar, C.B.**, Mishra, D.R., O'Shea, R., Kumar, A., Pahlevan, N., "A Modular Machine Learning framework to remotely estimate Phycocyanin pigment concentration in Cyanobacterial Harmful Algal Blooms" *American Geophysical Union (AGU) Fall Meeting 2024,* Washington D.C., USA, December 2024 [Poster]
25. Mathis, J., Mishra, D. R., **Maniyar, C.B.**, Jambeck, J., "Plastic Pollution in the Global South: Unmasking Urban - Environmental Crises and Underlying Disparities" *American Geophysical Union (AGU) Fall Meeting 2024,* Washington D.C., USA, December 2024 [AGU Abstract ; Poster available on request]
24. **Maniyar, C.B.**, Mai, G. and Mishra, D.R., "Improving Phycocyanin Estimation for Cyanobacterial Harmful Algal Blooms from Remote Sensing Reflectance using Optical Inversion and Machine Learning" *IEEE International Geosciences and Remote Sensing Symposium*, Athens, Greece, July 2024 [PPT]
23. Mathis, J., **Maniyar, C.B.**, Jambeck, J. and Mishra, D.R., "Evaluating Satellite-based Scale-up Approaches to Detect Plastic Waste Aggregation in Complex Urban Areas" *IEEE International Geosciences and Remote Sensing Symposium*, Athens, Greece, July 2024 [PPT available on request]
22. **Maniyar, C.B.**, Mishra, D.R., Mai, G., Kumar, A., Pahlevan, N., "Enhancing CyanoHAB Monitoring Across Multi-Satellite Sensors: Combining Empirical Phycocyanin Algorithms using Machine Learning" *NASA Biodiversity & Ecological Conservation Annual Meeting*, Maryland, USA, May 2024 [Poster]
21. **Maniyar, C.B.** and Mishra, D.R. "Proximal and Satellite-based Remote Sensing of US Waters for Cyanobacterial Harmful Algal Blooms: Detection, Monitoring and Early Warning" *UGA Climate and Water Research Slam 2024,* Georgia, USA, April 2024 [PPT]
20. Mathis, J., **Maniyar, C.B.**, Mishra, D.R., Dubey, B. and Jambeck, J. "Uncovering Geospatial Patterns to Emphasize the Urgency of Tackling Plastic Pollution at its Source" *EGU General Assembly 2024,* Vienna, Austria, March 2024 [Proceeding ; PPT available on request]
19. **Maniyar, C.B.** and Mishra, D. R. "Why so Salty?: Remote Sensing of Sea Surface Salinity in the Georgian Coastal Estuaries using Machine Learning Techniques" *GIS Day at UGA,* Georgia, USA, November 2023 – **(Best Paper Award)** [Poster]
18. **Maniyar, C.B.** Raviprakash, K. and Mishra, D. R. "Cyanosense 2.0: Low-cost Wireless Sensor for Remote Monitoring of Cyanobacterial Harmful Algal Blooms" *Confluence: UGA Water Science and Policy Poster Symposium,* Georgia, USA, October 2023 – **(Best Poster Award)** [Poster]
17. Srivastava, D., Matese, A., **Maniyar, C.B.**, Toscano, P., Di Gennaro S.F., "Assessment of Suitable Vegetation Indices Calculated from Remote and Proximal Sensing to Discriminate Irrigation Treatments in Tomato and Melon Crops" *14th European Conference on Precision Agriculture*, Bologna, Italy, June 2023 [Proceeding]
16. **Maniyar, C.B.**, Mishra, D.R., Kelly, J., Di Iorio, D. "Monitoring Sea Surface Salinity of the Georgian Coastal Estuaries using Optical Remote Sensing and Machine Learning Techniques" *GCE-LTER Annual Meeting 2023,* Georgia, USA, January 2023 [Poster]
15. **Maniyar, C.B.,** Srivastava, D., Matese, A. and Samiappan, S., "Enhancing Sustainable Weed Management in Turf Grass Through Deep Learning and Proximal Sensing" *AI Research Day 2022*, University of Georgia, USA, November 2022 – **(Best Poster Award)** [Poster]
14. **Maniyar, C.B.**, Rudresh, M., Kumar, A. and Mishra, D.R., "Modelling Total Suspended Sediments in the Belize Coastal Lagoon using Meta-Learning and Multi-Sensor Remote Sensing" *PECORA 22*, Colorado, USA, October 2022 [PPT]

13. Mathis, J. E., **Maniyar, C.B.**, Mishra, D.R., Dubey, B., Jambeck, J. "Elucidating Patterns of Urban Plastic Pollution in Mumbai using Remote Sensing Technologies" *7th International Marine Debris Conference,* Busan, Korea, September 2022 [PPT available on request]
12. **Maniyar, C.B.,** Srivastava, D., Matese, A. and Samiappan, S., "Neural Network-based High Throughput Field Phenotyping of Horticultural Crops using Hyperspectral UAV Imagery" *MSU/USDA-ARS Research Symposium Summer 2022*, Mississippi State University, USA, August 2022 [Poster]
11. **Maniyar, C.B.** and Mishra, D.R., "Multi-Sensor based Global Forecasting of Cyanobacterial Harmful Algal Blooms using Deep Learning with Long Short-Term Memory" *IEEE International Geosciences and Remote Sensing Symposium*, Kuala Lumpur, Malaysia, July 2022 [Paper | PPT]
10. **Maniyar, C.B.** and Mishra, D.R., "Geo-AI for Forecasting Anthropogenic Harmful Algae Blooms using Sentinel-3 and Open Social Media" *ASPRS Virtual Annual Meeting 2022*, March 2022 [PPT | YouTube]
9. **Maniyar, C.B.**, Kelly, J., Mishra, D.R., "Machine Learning Methods for Sea Surface Salinity Estimation in the Georgian Estuaries using Satellite-based Reflectance Data" *American Association of Geographers (AAG) Annual Meeting 2022,* New York, USA, February 2022 [PPT]
8. **Maniyar, C.B.**, Kumar, M. "Improved Automated Building Extraction from High Resolution Remote Sensing Imagery using Time-Optimized Deep Learning Techniques" *American Geophysical Union (AGU) Fall Meeting 2021,* New Orleans, USA, December 2021 [Abstract | Poster]
7. **Maniyar, C.B.**, Kumar, A. & Mishra, D.R., "Frequent Synoptic Monitoring of Cyanobacterial Harmful Algal Blooms for Potential Prevention of Disease Outbreak" *CDC's Place And Health Conference*, November 2021 [PPT]
6. **Maniyar, C.B.**, Kumar, M. "Deep Learning based Improved Automatic Building Extraction from Open Source High Resolution UAV Imagery" *2nd International Conference on Unmanned Aerial Systems in Geomatics,* Indian Institute of Technology, Roorkee, April 2021 – **(Best Paper Award)** [PPT | YouTube]
5. **Maniyar, C.B.**, Kumar, A., Mishra, D.R., "Web-based Interactive Approach for Continuous Monitoring of Indian Inland and Estuarine Waters for Harmful Algal Blooms" *National Symposium on Remote Sensing for Environment Monitoring and Climate Change Assessment,* Indian Society of Remote Sensing (ISRS) and Indian Society of Geomatics (ISG), Virtual, December 2020 – **(Best Paper Award)** [PPT]
4. **Maniyar, C.B.**, Mishra, D.R. & O'Halloran T., "Ecological Impact of Hurricane Matthew on South Carolina Coastal Marshes and Forests using Time-Series Analysis" *National Symposium on Remote Sensing for Environment Monitoring and Climate Change Assessment,* Indian Society of Remote Sensing (ISRS) and Indian Society of Geomatics (ISG), Virtual, December 2020 [PPT]
3. **Maniyar, C.B.**, Banda, T., Krishna, D., Sharma, C. "Effective Cyanobacterial Harmful Algal Blooms Monitoring using Open Social Media Platforms and Google Earth Engine" *National Symposium on Remote Sensing for Environment Monitoring and Climate Change Assessment,* Indian Society of Remote Sensing (ISRS) and Indian Society of Geomatics (ISG), Virtual, December 2020 [Poster]
2. **Maniyar, C.B.**, Kumar A. **"**Generative Adversarial Network for Cloud Removal from Temporal Optical Satellite Imagery**"** *SoCProS 2020: 10th International Conference on Soft Computing for Problem Solving at Indian Institute of Technology (Indore)*, Virtual, December 2020 [PPT | YouTube]
1. **Maniyar, C.B.**, Kumar, A., Mishra, D.R., 2020. **"**Cloud Based Approach for Continuous Monitoring and Assessment of Indian Inland and Estuarine Water Environments using Sentinel-3 OLCI data**"**. *Indian Society of Remote Sensing: National Seminar*, Indian Institute of Remote Sensing, Dehradun, Uttarakhand, India, March 2020 **(Hexagon Geospatial Industry Appreciation Award)** [PPT]