ADITHI R. UPADHYA

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EDUCATION

Master of Science in Geoinformatics (M. Sc.)

Bharati Vidyapeeth Institute of Environment Education and Research, Pune, India, 8.96/10
Thesis: AssetConnect: A Dynamic Web Application to track assets using Geospatial Technologies.   *Aug 2018*

Bachelor of Science in Physics (Honors)   *Apr 2016*

Sri Sathya Sai Institute of Higher Learning, Anantapur, India 8.5/10
Thesis: *Analysis of Gamma Decay Spectrum of Tb 159 to Dy 162 using GammaVision and FIT*

EMPLOYMENT

Consultant, University of California, Berkeley   Jan 2023 - present

- Analysis of low-cost air pollution sensor data from a multi-state network established in the Indo Gangetic Plains-India.

Contractor, University of Liverpool, Dept. of Public Health, Policy and Systems   Dec 23 – Mar 24

- Adding new functionalities, documenting, and testing of IMPACTncd_Engl, a free software and an implementation of the IMPACTncd framework.

Research Assistant, University of Liverpool, Dept. of Public Health, Policy and Systems   Apr - Nov 2023

- Developing machine learning models using python for predicting real time air pollution measurements in peri-urban sub-Saharan Africa.
- Data visualization for household air pollution data collected in sub-Saharan Africa.
- Maintained and analyzed a large database of financial data from a start-up selling clean energy technologies in rural Kenya.

Consultant, Stellenbosch University, South Africa   Sep 23 – Jan 24

- Generating protocols for analysis of filter-based and low-cost sensor data from a randomized controlled trial of the impact of a social housing programme on household air pollution exposures in informal settlements surrounding Cape Town, South Africa.

Data Scientist - Air pollution, ILK Labs, India   2018 - 2023

- Development of air quality models using satellite, stationary, and mobile measurements of air pollutants in Bengaluru, India in collaboration with *Google; University of Washington, Seattle; University of California, Berkeley*.

Consultant, Sri Ramachandra Institute of Higher Education and Research, India   2020 - 2023

- Calibration model development and analysis of multi-habitat indoor and outdoor low-cost sensors as a part of assessing the effectiveness of the LPG scheme introduced by the Govt. of India.

Intern, National Center for Polar and Ocean Research, Goa, India   2018

- Glacier velocity estimation using optical and microwave remote sensing and study of Blue Ice Areas, elevation, and melt duration effects on the estimated glacier velocity.

Intern, Tata Power Limited, Pune, India   2017

- Segmentation on very high-resolution Worldview images using multiple software and techniques of visual interpretation.

Intern, Wai Technologies, Pune, India   2017
- Development of android application for demonstration purpose.

PROFESSIONAL EXPERIENCE

Co-Instructor- *Introduction to R*   2022
Center for Study of Science, Technology, and Policy (CSTEP) and Sri Ramachandra Institute of Higher Education and Research
Consultant air quality personal exposure - *The New York Times*   2020

PROGRAMMING SKILLS

Data analysis: **R** (advanced), **SQL** (intermediate), **Python** (intermediate)
Software development: **R** (intermediate), **C#** (beginner)
Web development: **Shiny** (intermediate), **HTML/CSS** (beginner), **JavaScript** (beginner)
Document preparation: **markdown** (intermediate)
DevOps: **Git/GitHub**
GIS Software: **QGIS, ArcGIS, SAGA**
Google Products: Google Maps API, Google Earth Engine

OPEN-SOURCE SOFTWARE DEVELOPMENT

Developer and maintainer - mmaqshiny, pollucheck.

VOLUNTEER EXPERIENCE

- Founder and Co-organiser of R-Ladies Bangalore and co-founder of AsiaR.
- Global organising team member for Sponsorship, Program and Content team and part of Code of Conduct Response team for the useR! 2021 global.
- Co-hosted a live Q and A session - Teaching for rstudio::global(2021), chair for a Keynote at useR! 2021

PEER REVIEWER

1. Journal of Open Source Software
2. rOpenSci

REPORTS

1. CSTEP and ILK Labs (2023). Mapping air pollution in Bengaluru using low-cost sensors and mobile monitoring data. CSTEP-RR-2023-3.
2. CSTEP and ILK Labs (2022). Best practices for deploying and maintaining a low-cost PM2.5 sensor network. CSTEP WS-2022-02.
3. CSTEP and ILK Labs (2022). Performance assessment of low-cost PM2.5 sensors. CSTEP-WP-2022-01.

ACADEMIC PUBLICATIONS

1. **Upadhya, A. R.**, Kushwaha, M., Agrawal, P., Gingrich, J. D., Asundi, J., Sreekanth, V., ... & Apte, J. S. (2024). Multi-season mobile monitoring campaign of on-road air pollution in Bengaluru, India: High-resolution mapping and estimation of quasi-emission factors. Science of The Total Environment, 914, 169987. Doi: https://doi.org/10.1016/j.scitotenv.2024.169987
2. Shupler, M., Tawiah, T., Nix, E., Baame, M., Lorenzetti, F., Betang, E., Chartier, R., Mangeni, J., **Upadhya, A.**, ... & Ngahane, B. H. M. (2024). Household concentrations and female and child exposures to air pollution in peri-urban sub-Saharan Africa: measurements from the CLEAN-Air (Africa) study. The

Lancet Planetary Health, 8(2), e95-e107. Doi: https://doi.org/10.1016/S2542-5196(23)00272-3

3. Feldman, A., Kendler, S., Marshall, J., Kushwaha, M., Sreekanth, V., **Upadhya, A. R.**, ... & Fishbain, B. (2023). Urban Air-Quality Estimation Using Visual Cues and a Deep Convolutional Neural Network in Bengaluru (Bangalore), India. Environmental Science & Technology. Doi: https://doi.org/10.1021/acs.est.3c04495

4. Ravindra, K., Vakacherla, S., Singh, T., **Upadhya, A. R.**, Rattan, P., & Mor, S. (2023). Long-term trend of PM2. 5 over five Indian megacities using a new statistical approach. Stochastic Environmental Research and Risk Assessment, 1-11. Doi: https://doi.org/10.1007/s00477-023-02595-x

5. Campmier, M. J., Gingrich, J., Singh, S., Baig, N., Gani, S., **Upadhya, A**., Agrawal, P., Kushwaha, M., Mishra, H. R., Pillarisetti, A., Vakacherla, S., Pathak, R. K., and Apte, J. S.: Site and Season Specific Calibrations Improve Low-cost Sensor Performance: Long-term Field Evaluation of PurpleAir Sensors in Urban and Rural India, *Atmos. Meas. Tech.* Discuss. [preprint], Doi: https://doi.org/10.5194/amt-2023-35, in review, 2023.

6. Sreekanth, V., Bhargav, A. R., Kulkarni, P., Puttaswamy, N., Prabhu, V., Agrawal, P., **Upadhya, A. R.**, Rao, S., Sutaria, R., Mor, S., Dey, S., Khaiwal, R., Balakrishnan, K., Tripathi, S. N., Singh, P. Inter- versus Intra-city variationsin the performance and calibration of low-cost PM2.5 sensor: a multicity assessment in India. Manuscript accepted in ACS Earth and Space Chemistry. Doi: 10.1021/acsearthspacechem.2c00257

7. Kushwaha, M., Sreekanth, V., **Upadhya, A. R.**, Agrawal, P., Apte, J. S., & Marshall, J. D. (2022). Bias in PM2. 5 measurements using collocated reference-grade and optical instruments. *Environmental Monitoring and Assessment*, *194*(9), 1-14. Doi: 10.1007/s10661-022-10293-4

8. Joo, R., Sánchez-Tapia, A., Mortara, S., Bellini Saibene, Y., Turner, H., Hug Peter, D., ... & Ravi, J. (2022). Ten simple rules to host an inclusive conference. *PLoS computational biology*, *18*(7), e1010164. doi: 10.1371/journal.pcbi.1010164

9. Kulkarni, P., Sreekanth, V., **Upadhya, A. R.**, & Gautam, H. C. (2022). Which model to choose? Performance comparisonof statistical and machine learning models in predicting PM2. 5 from high-resolution satellite aerosol optical depth. Atmospheric Environment, 119164. doi: 10.1016/j.atmosenv.2022.119164

10. Puttaswamy, N., Sreekanth, V., Pillarisetti, A., **Upadhya, A. R.**, Saidam, S., Veerappan, B., ... & Balakrishnan, K. (2022). Indoor and Ambient Air Pollution in Chennai, India during COVID-19 Lockdown: An Affordable Sensors Study. *Aerosol and Air Quality Research*, *22*(1), 210170. doi: 10.4209/aaqr.210170

11. **Upadhya, A. R**., Agrawal, P., Vakacherla, S., & Kushwaha, M. (2021). pollucheck v1. 0: A package to explore open- source air pollution data. Journal of Open Source Software, 6(63), 3435. doi: 10.21105/joss.03435

12. Spandana, B., Rao, S. S., **Upadhya, A. R**., Kulkarni, P., & Sreekanth, V. (2021). PM2. 5/PM10 ratio characteristics over urban sites of India. Advances in Space Research, 67(10), 3134-3146. doi: 10.1016/j.asr.2021.02.008

13. Sreekanth, V., Kushwaha, M., Kulkarni, P., **Upadhya, A. R**., Spandana, B., & Prabhu, V. (2021). Impact of COVID-19 lockdown on the fine particulate matter concentration levels: Results from Bengaluru megacity, India. Advances in SpaceResearch, 67(7), 2140-2150. doi: 10.1016/j.asr.2021.01.017

14. **Upadhya, A. R**., Agrawal, P., Vakacherla, S., & Kushwaha, M. (2020). mmaqshiny v1. 0: R-Shiny package to explore Air-Quality Mobile-Monitoring data. Journal of Open Source Software, 5(50), 2250. doi: 10.21105/joss.02250

PAPERS IN PROGRESS

1. **Upadhya, A. R. et al.** Using machine learning to predict real-time PM2.5 exposures from household air pollution in peri-urban sub-Saharan Africa.

AWARDS and OTHER interests

- [Geo for Good Summit](), Mountain View, California, 2022 (~3300 USD)
- [Certified Tidyverse Instructor]() – 2022
- RStudio Diversity Scholar, 2021
- [R@IISA]() Conference Travel Award, 2019 (~160 USD)
- Primer in Methods and Ecological Research ([PRiMER]()) Sponsored by ILK Labs, 2019 (~370 USD)
- For undergraduate degree received Gold Medal, 2016
- Wildlife Conservation – A volunteer at [Asian Nature Conservation Foundation](), Bengaluru.