Deepthi Ayyagari

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Key Highlights

As a Ph.D. scholar, I possess strong communication skills and critical thinking abilities developed through extensive research and teaching experience. Additionally, I am proficient in a range of areas including Guidance Navigation and Control Systems, Data Modeling and Analysis, Signal Processing, and Geospatial Image Processing. I am equally comfortable working independently or as part of a team.

Skills Profile

Office Tools: MS Office, LaTEX, Canvas and Articulate 360
Programming languages: MATLAB, Python, FORTRAN and C, Basics of SQL and R
GNSS/Geospatial File Handling: rinex, ismr, nmea, ascii, csv, txt, rtklib, Netcdf, Gamit, NavIC and ArcGIS.
CAD Applications: AutoCAD, CATIA, Fusion360 (Basic).
Simulation Applications: ANSYS FLUENT, SimPy, and Basics of SIMULIA.
Soft Skills: Critical thinker, Excellent Communicator, Detail oriented and Organized.
Operating System: Windows, LinUX/Unix and Mac.
Languages known: English, Telugu, Hindi, Tamil and German (B1).

Relevant Experience

Indian Institute of Technology Indore   Madhya Pradesh, India
Doctoral Researcher, DST Inspire Fellow   *Jul 2017- Present*

- Performed resolution & precision analyses between NavIC & GPS for Real Time Kinematic and Precise Point Positioning (PPP), achieving error reductions of >20%.
- Analyzed satellite imagery from massive datasets to assess effects of extreme space weather events on spacecrafts & Earth bound aspects, identified anomalies in >600 days + images under SAC- ISRO-NGP projects.
- Gained knowledge of various web developing tools to showcase the highlights of space weather analysis of the laboratory at IIT Indore for multiple projects and conferences.
- Demonstrated a comprehensive understanding of various communication protocols (USB, CAN, etc;), allowing troubleshooting and debugging of receiver communication issues, while also optimizing performance to meet the project requirements.
- Mentored more than five undergraduate students for their technical projects in the domain of Machine Learning techniques (linear regression) to detect Space Weather Events based on a satellite data spanning to the last 20 years with precision accuracy rate of 95.6%.
- Proficient in handling RF laboratory instruments like RF signal generator, VNA, Spectrum Analyzers as well in understanding the software development environment using Agile Methodologies (Jira - Kanban) along with a few integration tools (Git).
- Presented research results at more than 6 national and international conferences across India, USA and Europe, earning URSI Young Scientist Award in 2022 for article on satellite signal intensity fading studies.

NRN Aerospace Systems Pvt Ltd   Telangana, India
Research Engineer   *Sep 2016 - Jun 17*

- Understood the working progress in startup and authored various design proposals, and pitch deck presentations.
- Gained the basic knowledge of designing, to improve the existing designs of various sensors.

Jawaharlal Nehru Technological University Hyderabad   Telangana, India
Research Intern at CEAWMT, JNTUH   *Aug 2014 - Nov 2015*

- Analyzed C-band, Micro-rain & MST Radar data alongside satellite imagery to interpret extreme weather conditions, driving accuracy of predictions to over 92.6%.
- Adopted Fortran & C based Numerical Weather Prediction models to collect & study Automatic Weather Station data with interpretation of Meteorological Data Charts.
- Extensively worked on GIS applications (ArcGIS-Erdas) for hydrological survey (ground water) to develop the maps within the city permits to improve the recharge pits around the residential areas.
- Achieved Academic Achiever Award for top performance in MSc-Class 2016 at JNTUH, achieving a percentile ranking in the highest 5% among 200+ students.

Leadership & Teamwork Experience

IEEE Student Branch IIT Indore Madhya Pradesh, India
Chair *Aug 2019 - Oct 2021*

- Initiated the formation of the IEEE Student Branch in IIT Indore with the support of Prof. Abhirup and Dr. Saurabh.
- Managed a team of more than 30 student members to organize the IEEE-Student Branch activities to initiate the formation of various IEEE chapters like IEEE GRSS, WIE, ComSoc, etc.
- Recruited and mentored executive committee members of the branch and successfully organized many IEEE International Workshops at IIT Indore.
- Conducted weekly meets to introduce new members to the committee and maintain the branch activities.

Coupling, Energetics and Dynamics of Atmospheric Regions Program CEDAR Colorado, USA
CEDAR Student Volunteer *2020 & 2021*

- Volunteered in scheduling various talks of eminent professors throughout the workshop.
- Summarized various talks with the aid of a few other volunteers to develop the newsletters of CEDAR workshops for the years 2020 and 2021.
- Spearheaded to introduce interactive games/quiz sessions between the break sessions of these workshops.

Indian Institute of Technology Indore MadhyaPradesh. India
Teaching Assistant *2018 - 2021*

- Assisted in delivering lectures and preparing course materials for undergraduate and postgraduate students.
- Designed handout materials including study problems and graded aerospace assignments.
- Attained strong research and conceptual background with coursework in the following areas: Satellite based Navigation Systems, Satellite Attitude Dynamics Guidance & Control Systems, Kalman Filter Design & Applications, and Space Weather.

Education

Indian Institute of Technology Indore Madhya Pradesh, India
Ph.D. Astronomy (Thesis submitted); Grade: 8/10 Expected July 2023

Jawaharlal Nehru Technological University Hyderabad Telangana, India
M.Sc. Satellite Meteorology and Weather Informatics; Grade: Distinction Jan 2016

Jawaharlal Nehru Technological University Hyderabad Telangana, India
B.Tech. Aeronautical Engineering; Grade: Distinction Aug, 2013

Publications

- **Deepthi Ayyagari**, S. Chakraborty, S. Das, A. Shukla, A. Paul, A. Datta., "Performance of NavIC for studying the ionosphere at an EIA region in India", Advances in Space Research, Volume 65, Issue 6, 2020, Pages 1544-1558, ISSN 0273-1177, https://doi.org/10.1016/j.asr.2019.12.019.
- **Deepthi Ayyagari,** A. Datta and S. Chakraborty.,"Systematic Study of Ionospheric Scintillation over the Indian Low-Latitudes during Low Solar Activity conditions", Advances in Space Research, Volume 70, Issue 8, 2022, Pages 2506-2521, ISSN 0273-1177, https://doi.org/10.1016/j.asr.2022.07.026.
- **Deepthi Ayyagari,** S. Datta, S. Das, A. Datta., "Ionospheric response during Tropical Cyclones-a brief review on Amphan and Nisarga", Advances in Space Research, 2022, https://doi.org/10.1016/j.asr.2022.11.026, (Article in Press)
- **D. Ayyagari** and A. Datta, "A characteristic analysis of low-latitude NavIC signal intensity fading," 2022 3rd URSI Atlantic and Asia Pacific Radio Science Meeting (AT-AP-RASC), 2022, pp. 1-4, doi: 10.23919/AT-AP-RASC54737.2022.9814316, (Young Scientist Award)
- **D. Ayyagari** and A. Datta, "TEC variations over Central part of India during Annular Eclipse of June 21, 2020", 2021 IEEE Indian Conference on Antennas and Propagation (InCAP), 2021, pp. 645-648, doi: 10.1109/InCAP52216.2021.9726408.
- **Ayyagari D.**, Chakraborty S., Datta A., Das S., "Impact of Intense Geomagnetic Storm on NavIC Signals Over Indore," (2021); In: Das N.R., Sarkar S. (eds) Computers and Devices for Communication. CODEC 2019. Lecture Notes in Networks and Systems, vol 147. Springer, Singapore. https://doi.org/10.1007/978-981-15-8366-7_21
- **D. Ayyagari**, S. Chakraborty and A. Datta, "Ionospheric observations over central part of India using comparative study of NavIC and GNSS," 2019 URSI Asia-Pacific Radio Science Conference (AP-RASC), New Delhi, India, 2019, pp. 1-2, doi:10.23919/URSIAP-RASC.2019.8738244.