



## Sandeep Kumar Patakamuri

📍 4-1103, Vidyaranya Nagar, Papampeta, Anantapuramu, India – 515 004

☎ +91-9959803532 📠 +91-9182078967

✉ [sandeep.patakamuri@gmail.com](mailto:sandeep.patakamuri@gmail.com) 🌐 [www.skpatakamuri.com](http://www.skpatakamuri.com)

Sex Male | Date of birth 02/Apr/1987 | Nationality Indian



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### SYNOPSIS

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- Eight plus years of experience in research and academia.
- Good programming knowledge and working experience with HPC systems.
- Experience as a data scientist, responsible for developing NLP and Machine Learning algorithms.
- Published two statistical packages to R-core repository (CRAN) with git version control.
- Exceptional skills in statistical analysis, predictive modelling and reporting.
- Visited United States of America with NASA funding as a member of GOFC-GOLD South Asia.
- Received full funding to attend training programs, conducted in affiliation with United Nations.
- Worked in close collaboration with Indian Space Research Organisation.
- Delivered guest lectures and invited talks at various institutions in the country.
- Presented papers at various international and national conferences.

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### CORE COMPETENCIES

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- Vast experience in Meteorological and atmospheric data analysis, Time-series modeling, Data filtering, Data Smoothing.
- Exceptional skills in data acquisition, pre-processing and exploratory data analysis.
- Working experience with predictive analytics and data reduction techniques like PCA.
- Worked with Correlation, Regression, Multinomial regressions, Bayesian models, Cellular Automata, Markovian models, Data clustering, Supervised and Unsupervised Classification models.
- Competent with parametric and non-parametric statistical hypothesis testing methods.
- Remote Sensing with Earth Observation Satellite Systems, Spatial Statistics and Modelling.
- Expertise in IBM-SPSS, SAS, Minitab, Matlab, ArcGIS, QGIS, ILWIS, ENVI, ERDAS Imagine, Terrset etc.,

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### EXPERIENCE SUMMARY

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- **Technical Lead at Infinite Computer Solutions** **July 2020 to till date**
- **Data Scientist at Z&A inc** **February 2019 to May 2020**
  - Zettalabs, the product wing of Z&A inc., had two products-Zettasense and Zettainsights in its portfolio.
  - I worked on development of various algorithms for solving record linkage or deduplication problem along with data standardization and normalization across various data sources and data formats.
  - Apart from these two products, our team was also involved in game schedule optimization problem for NFL (USA). The scheduling with NFL constrains is a trillion possibilities problem and our team is developing algorithms for massive parallelization to generate and validate the schedules. **I was responsible for solving permutations and combinations math and validating the generated schedules using distance metrics.**

- **Research Scholar at Anna University** **January 2013 to February 2019**
  - Time series satellite imagery and socio-economic datasets were processed to identify the drivers of land use change.
  - **Developed two open-source packages ‘modifiedmk’ and ‘trendchange’ in R-language to perform non-parametric trend analysis on time-series data (More than 20k downloads from CRAN).**
  - Correlation and regression analysis, dimensionality reduction techniques were used to identify the associations and dissociations in the data.
  - Future Land Use predictions maps were generated using Cellular Automata, Markovian and Agent-Based Models.

- **Research Fellow at ISRO** **26 March 2012 to 23 Nov 2012**

Worked as research fellow in ISRO-GBP project- Monitoring land use dynamics and impacts on human dimensions at Indian River basins.

Modelling the past and future changes in land use using supervised and unsupervised methods.

Collecting primary data and secondary data for identifying the impact of human dimensions on land use change.

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## ACADEMIC PROFILE

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- **Doctor of Philosophy** **Anna University**
  - Expected to be awarded in 2020 – Synopsis meeting concluded, and thesis submitted.
- **Master of Technology -Remote Sensing (2011)** **Anna University**
  - First class with CGPA 7.25 out of 10 and project internship at Indian Space Research Organization.
- **Bachelor of Engineering – E.C.E. (2009)** **Anna University**
  - First class with 68 percent and project internship at National Atmospheric Research Laboratory
- **Intermediate – Mathematics, Physics and Chemistry** **Andhra Pradesh**
  - First class with 72.5 percent.
- **Secondary School Certificate** **Andhra Pradesh**
  - First class with 81 percent.

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## CONSULTANCY PROJECTS

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- Identifying the sites suitable for eco-tourism development in Koraput district, Odisha, India.
- Monitoring the impact of National Highway NH-45 on Land Use/Land Cover Change.
- Estimating the Textural Parameters of High-Resolution Imagery Using Gabor Filter banks in Matlab.

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## RESEARCH PUBLICATIONS

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- Patakamuri, S.K.; Muthiah, K.; Sridhar, V. Long-Term Homogeneity, Trend, and Change-Point Analysis of Rainfall in the Arid District of Ananthapuramu, Andhra Pradesh State, India. *Water*, 2020, 12, 211.
- Patakamuri, S K.; Krishnaveni, M. & Rajeswari, A., 2016. Solar energy Potential estimation and its Utility for irrigation Using geo-spatial technology to ensure energy security. *Water and Energy International*, 59(2)(May), pp.34–38.
- Patakamuri, S.K.; Krishnaveni, M. & Rajeswari, A., 2017. Route and optimal location analysis of egg supplychain using geo-spatial technology. *Journal of Geomatics*, 11(1), pp.1–6.
- Patakamuri, S.K.; Muruganantham, M. & Krishnaveni, M., 2015. Performance evaluation of Uthiramerur tank irrigation system using spatial technologies and participatory approach. *Journal of Applied hydrology*, XXVIII(1&2), pp.79–86.
- Patakamuri, S.K.; Agrawal, S. & Krishnaveni, M., 2014. Time-series analysis of MODIS NDVI data along with ancillary data for land use/land cover mapping of Uttarakhand. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives*, 40(December), pp.1491–1500. Available at: 10.5194/isprsarchives-XL-8-1491-2014.

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## ACADEMIC AND COLLABORATIVE RESEARCH

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- Climatological trend analysis of Swaziland meteorological data - In collaboration with University of Swaziland.
- Impact of cyclone Vardah on agriculture sector-A case study of Tiruvallur District – In collaboration with Tamilnadu state disaster management cell.
- Long Term Rainfall Trend Analysis in Banas River Basin, Rajasthan from 1957-2016 – In collaboration with AP Goyal Shimla University.
- Identification of sites suitable for constructing Water Harvesting Structures in Vizianagaram district, Andhra Pradesh– In collaboration with Satya Institute of Technology and Management, Vizianagaram.
- Multi-Temporal SPOT NDVI Data Analysis for Land Use/Land Cover Change Detection Over 2000-2010 – Indian Institute of Remote Sensing/ISRO, Dehradun.
- Time-Series Analysis of MODIS NDVI Data Along with Ancillary Data for Land Use /Land Cover Mapping of Uttarakhand - Indian Institute of Remote Sensing/ISRO, Dehradun.
- Modified Butler Beam Forming Network for Uhf Wind Profiling Radar Applications – National Atmospheric Research Laboratory, Gadanki.

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## MEMBERSHIP IN PROFESSIONAL BODIES

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- Life Member of International Association of Hydrological Sciences (Member Id: 16216).
- Member of International Society of Photogrammetry and Remote Sensing student chapter.
- Life Member of Indian Society of Remote Sensing (Member Id: L-5387)