



## SATYAJIT RATH

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**19 years** of IT experience with full exposure to complete Software Development Life Cycle (SDLC) including Analysis, Design, Development, Testing, Implementation & Estimation (effort and cost) as a Project Leader, Project Manager and presently as a Scientist in the field of Applied Information Technology and Large ICT Infrastructure with live servers 500+ nodes Management. Have worked extensively on technologies such as, *Oracle, SQL Server, Dot NET, GIS and Wireless Sensor Network* with domain expertise of *e-Governance & Geomatics Applications*. Nodal Officer for Implementation of *National Knowledge Network*  and *OneCSIR*  (CSIR Enterprise Application).

### Academic Profile

- Ph. D. (Computer Science) - (Decision Models in District Planning A Comparative Analysis), Utkal University, Bhubaneswar.
- M.S.(Software Systems) (2002), Birla Institute of Technologies & Science (BITS), Pilani.
- B. Tech. (1997) College of Engineering & Technology, (O.U.A.T.), Bhubaneswar

### Research Interest:

- Decision Analysis & Prediction Modelling
- Process Simulation and Modelling
- Digital Image Analysis
- Geomatics & Remote Sensing Analysis & Modelling

### Awards & Recognition:

**“Outstanding Achievement Award”** for distinguished contribution and meritorious achievement as Project Champion for the CSIR Transformation Initiatives and Enterprise Application for Automation of Operations on the occasion of 71<sup>st</sup> Foundation Day of CSIR, 26 September 2013, by Dept. of Scientific and Industrial Research, Ministry of Science & Technology, Govt. of India, New Delhi.

### Professional Experience:

- Scientific positions (Computer Networking & e-Management) at CSIR-Institute of Minerals & Materials Technology, Bhubaneswar since April 2008 (Currently Sr. Scientist since April 2012)
- Scientific positions at C-DAC, NOIDA from September 1998 to April 2008
- Software Engineer at Geo-Informatics, Bhubaneswar from August 1997 to September 1998

### Teaching Experience:

- AcSIR, PhD students (Research Methodology, Computational Methods and Numerical Analysis) at CSIR-IMMT.
- MCA, PG Diploma in Geo-Informatics (Geomatics, Graphics Programming) at C-DAC, NOIDA

### Patents / Copy Rights

- Copyright on “LandMaPS: Landslide Monitoring and Prediction Software”, India, (008CR2013 dated 01.02.2013, filed by CSIR)
- Patent on “Landslide detection and alerting system using wireless sensor network”, India, (2444/DEL/2013 dated 19.08.2013, filed by CSIR)

- Patent on “A method and apparatus for controlling the speed of pelletization disc using image processing based pellet-size-distribution trend to reduce recycling load”, India (3830/DEL/2013 dated 31.12.2013, filed by CSIR)
- Patent on “Software controlled and operated apparatus for real-time location based air pollution monitoring system in a moving node”, India. (201611009092 dated 16.03.2016, filed by CSIR)

### **Supervision:**

Guided more than 60 M. Tech, MCA and B. Tech students in the field of IT and Computer Science.

### **Major Publications:**

- Swain Satyabrata, Mishra Niharika, **Rath Satyajit**, Sahoo BPS, “Spectrum sharing for D2D communication in 5G cellular networks: An auction-based model”, India Conference (INDICON), 2016 IEEE Annual, pp 1-6, 2016
- Panda Sipra, Sharma SK, Mahapatra Parth Sarathi, Panda Upasana, **Rath Satyajit**, Mahapatra Minakshi, Mandal TK, Das Trupti "Organic and elemental carbon variation in PM2. 5 over megacity Delhi and Bhubaneswar, a semi-urban coastal site in India", Natural Hazards 80 (3), 1709-1728, October 2015 (IF 1.719)
- **Rath Satyajit**, Pandey S K, Sandha D. P., Mishra S K and Sahoo B. P. S.; "Earth monitoring using wireless sensor network: a case study of landslide monitoring", Journal of Engineering Geology(Special Publication), pp 120-126, October 2015
- Shukla S. K., Chaulya S. K., Mandal R., Kumar B., Ranjan P., Mishra P. K., Prasad G. M., Dutta S., Priya V., **Rath S.**, Buragohain K., Sarmah P. C., " Real-Time Monitoring System for Landslide Prediction Using Wireless Sensor Networks", International Journal of Modern Communication Technologies & Research, pp 14-19, Volume-2, Issue-12, December 2014 (IF 1.692)
- **Rath Satyajit**, Pandey, S. K., Sandha, D. P., Mohapatra M., Rath, B., Grahacharya, T., Sahoo, B.P.S, "Spatial and Temporal Analysis of VOC Concentration in Capital City of Odisha in Indian Sub-continent", Computational Intelligence in Data Mining (Volume-2), Smart Innovation, System and Technologies (Volume -32), Springer International Publishing, pp 617-625, December 2014.
- Sahoo B.P.S., Puthal Deepak , **Rath Satyajit**, "An Energy Efficient Optimal Routing Method for Wireless Sensor Networks", ARPJ Journal of Science and Technology, pp 558-564, Volume 4, Issue 10, October 2014. (IF 0.343)
- Mahapatra, Parth S, Panda, Sipra, Das, Namrata, **Rath S**, Das, Trupti , "Variation in black carbon mass concentration over an urban site in the eastern coastal plains of the Indian sub-continent", Theoretical and Applied Climatology (Springer), pp 133-147, Volume 117, Issue 1-2, July 2014 (IF 1.742)
- **Rath Satyajit**, Pradhan Sateesh K., “Rural Educational Planning – An Analytical Hierarchy Process Approach (AHP)”. Siddhant- A Journal of Decision Making, Volume 13, Issue 3, July-August 2013.
- **Rath Satyajit**, Pradhan Sateesh K., “Rural Electrification Planning – A Goal Programming Approach”. International Journal of Applied Research on Information Technology and Computing (IJARITAC) , Volume 4, Issue 2, August 2013.
- **Rath, Satyajit**, Pradhan, S. K , Shukla, V. N. "Role of Decision Making Models in District Scenario Planning". (2012) International Journal of Computer Applications, 56(17), 12-17(IF 0.821)
- Sahoo, B. P. S., **Rath, Satyajit** and Puthal, D. "Energy Efficient Protocols for Wireless Sensor Networks: A Survey and Approach" (2012) International Journal of Computer Applications, 44(18), 42-48 (IF 0.821)
- **Rath Satyajit**, et al. "Spatial Multi-Criteria Decision Analysis For Effective Waste Management", Proceedings of National Seminar on Eco-Friendly Waste Management for Sustainable Development, 2011

- **Rath Satyajit**, et al. "Implementation of Decision Support System at Districts.", Proceedings of Annual Seminar of CDAC Noida Technologies (ASCNT) 2008, NOIDA, India, 7-8 February 2008
- **Rath Satyajit**, "Land Management Information System: A Designer's Perspective", Proceedings of Annual Seminar of CDAC Noida Technologies (ASCNT) 2008, NOIDA, India, 7-8 February 2008
- **Rath Satyajit**, Mathur Poonam, "Land Management Information on Internet GIS ", Proceedings of ESRI User Conference-2004, NOIDA, India, 2-3 December 2004
- Shukla, V. N., **Rath Satyajit\***, Saxena Sanjay, "Geographic Information System -An effective tool for Land Acquisition", Proceedings of Map Asia-2003, Kualalampur, Malaysia, 13-15 October 2003
- Shukla V N, **Rath Satyajit\***, "GIS as front end for district administration & property management", Proceedings of Map India-2000, New Delhi, India, 10-11 April 2000

#### **Major R&D Projects worked on:**

**Online City Air Pollution Monitoring with Moving Node in GSM Network, (a R&D project funded by DeitY, Govt. of India):** An innovative way of real-time monitoring city air pollution through wireless sensors mount on moving vehicle. Spatial profiling of city air quality with information dissemination through web portal and smart mobile application for location specific projected pollutant level.

**Study of Ozone and its precursor trace gases at Bhubaneswar [ISRO-Geosphere Biosphere Programme] :** The effect of urbanization on the atmosphere of Bhubaneswar is being studied and many significant observations related to the morphological characteristics of the fine particulate matter and their source have been traced by the use of advanced technologies like satellite observations, GIS based software and HYSPLIT models. The data generated at our station is a part of the national database of our country.

**Development of online Image processing in Palletisation plant, (a R&D project funded by DST, Govt. of India):** A Non-invasive system for pelletization industries towards size analysis during pellet making. Pelletization industries use disc pelletizers to produce pellets of different sizes. The image based real time size distribution data is locally displayed (for onsite operator) and further transmitted and stored (for control room) for post analysis reports. This helps for timely control of RPM/water/feed-rate etc. and also in parameter optimization for a new type ore. The system reduces the recycling load & enhances plant productivity.

**Development of Landslide Monitoring System for North Eastern Regions of India Using Wireless Sensor Network, (a R&D project funded by DeitY, Govt. of India):** A system to help the local management for improving the safety of the people and assets from geo-hazardous disasters of landslide. The triggering factors get monitored using wireless sensor network to predict and provide a pre-disaster alarm with the use of Multi-criteria Decision Analysis, Geo-statistical models.

**Decision Support System for District Planning, (a R&D project funded by DeitY, Govt. of India):** A tool to facilitate the District Administration in planning the developmental activity in the district. This has been designed considering the sectoral approach with an integrated solution of GIS based MIS using a comprehensive and composite decision model for planning of the utilities in Education & Health. The pilot the system has been implemented at ten districts in three states (Uttar Pradesh, Haryana & Himachal Pradesh).

**Land Management Information System (a project funded by Delhi Development Authority):** A system to facilitate the users to get the Land Information on fingertips, both spatial and non-spatial. This also helps in processes of Land Acquisition based on zonal/layout plans with a track of various notifications and compensations under the Land Acquisition Act.