CV

Dr. Santos Kumar Das

1. **Name and full correspondence address**

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3. **Gender**

   Male

4. **Research interest:** AI, IoT, Sensor Networking, Optical Networking (LiFi, FSO, SDN), Smart Product Development.

5. **Academic Qualification**

Sl. No.	Degree	Year	Subject	University/Institution	Career
1.	PhD	2014	Communication Network	NIT Rourkela, Odisha, India	NA
2.	M.S	2002	Electrical Communication Engineering	IISc, Bangalore, India	1st Class
3.	B.E	1998	Electronics and Communication	VSSUT (Formerly UCE), Burla, Odisha, India	1st Class
4.	+2 Science	1993	Physics, Chem, Math	D. D. College, Keonjhar, Odisha, India	1st Class
5.	High School	1990	Math, Science	Police High School, Keonjhar, Odisha, India	1st Class

6. **Details of professional training**

Sl. No.	Experience	University/Board	Subject	Duration
1.	Certified in Hands on Network processor using micro-code C	Intel, CANADA	Machine Learning summer school	05/2011-06/2011
2.	Cisco – Interconnecting Cisco Network Devices (ICND),	New Horizon, Singapore	Basic course on Labview,	08/2010-09/2010
3.	Scientific Writing Skills	A-STAR, Singapore	English	05/2008-06/2008
4.	Fiber channel Trainee	A-STAR, Singapore	Implement UDP protocol	09/2007-12/2007

7. **Work experience**

Sl.	Positions Held	Name of the Institute	From	To

No.				
1.	Associate Professor	NIT Rourkela, Odisha, India	01/12/2009	Present
2.	Senior Software Engineer	Palvision, Singapore	10/09/2009	17/11/2009
3.	Senior Software Engineer	ITXpress/Xpress Distribution, Singapore	04/07/2009	09/09/2009
4.	Software Engineer	Actatek, Singapore	08/01/2008	03/07/2009
5.	Network Engineer	Netmarks, Singapore	03/09/2007	19/11/2007
6.	Research Associate	CEMNet Lab, NTU, Singapore	01/03/2007	30/08/2007
7.	Software Integration Engineer	Motorola Electronics Pvt. Ltd, Singapore	05/12/2006	28/02/2007
8.	Research Engineer (R&D)	A-Star Singapore (I2R & DSI)	08/07/2002, 29/08/2005	31/07/2005, 30/11/2006
9.	Lecturer	VSSUT, Burla	01/08/1998	01/08/1999

8. **Professional Recognition**

Sl. No.	Name of Award	Awarding Agency/Institute	Year
1.	Editorial Board Member	*AITIJ Journal*	2020
2.	Reviewer	*AITIJ Journal*	2020
3.	Reviewer	WJAET	2020
4.	Reviewer	Inderscience Journal	2020
5.	Reviewer	IEEE Access Journal	2018-pres.
6.	Committee member	ICES2011, ICOST 2004, ICACCT2019	2019-pres.
7.	Conferences session chair	TENCON 2011	2015-2019
8.	Examiner	SUIIT, Burla	2018
9.	Examiner	IIIT, Bhubaneswar	2019
10.	Examiner	SUIIT, Burla	2019
11.	External Export for PhD interview	GIET University	2019
12.	Best paper award	International Conference on Next Generation Computing Technologies (NGCT)	2017
13.	Best paper	Electronic Systems and Intelligent Computing (ESIC)	2020
14.	Technical Member	DRDO Project	2013

14	Senior IEEE Member	IEEE	2019
15	Best Research Paper Award	(IoT Cloud For Societal Applications,IoTCloud'21,III T KOTTAYAM	2021
16	Best faculty Advisor	NIT Rourkela	2022
17	Best faculty Advisor	NIT Rourkela	2023
18	Fellow Institute of Engineers, India	Institute of Engineers, India	2023
19	Session Chair	Innovation & Technology inclusion program in manufacturing and asset management for steal industry organized by Institute of Engineers & Tata Steal	27th Nov to 28th November 2023
20	Session Chair	International Conference on 6G Communications Networking and Signal Processing (SGCNSP 2023) organized by IISc Bangalore, National University of Singapore and Sunkonnect Pte. Ltd. Singapore	29th December 2023
21	TPC Chairs	International Conference on 6G Communications Networking and Signal Processing (SGCNSP 2023) organized by IISc Bangalore, National University of Singapore and Sunkonnect Pte. Ltd. Singapore	DECEMBER 27-30, 2023

9. **Supervisor**

Sl. No	Supervised in	Completed	Ongoing
1.	PhD	08 (5+3)	16
2.	M.Tech	49	4
3.	B.Tech	52	4

10. **Project and funding**

Sl. No	Project Title	Funding Agency	Cost (Rs. In lakh) & Duration	Status

1	**Intelligent Surveillance Data Retriever (ISDR) for Smart City Applications.**	**IMPRINT (MHRD & UD), India (PI)**	**386 Jul 2017 – July 2021**	**Completed**
2	**Development of Wireless Multi Sensor based Intelligent Security and Surveillance System.**	**DRDO, India (PI)**	**27 May 2018 – May 2021**	**Completed**
3	**Slope stability study for Ardhagram coal mines.**	**OCL, India (CO-PI)**	**5.97 Oct 2018 to Oct 2020**	**Completed**
4	Development of High speed transmitter for 5G Application.	SCIENCE & ENGINEERING RESEARCH BOARD (SERB), India, (PI)	43.085 19 Jan 2023 to 18 Jan 2026	(Ongoing)
5	Development of UAV-based near real-time surface fire detection and delineation system for coal mining and forest regions	DST-NGP, India, (CO-PI)	30 12/2022-12/2025	(Ongoing)
6	Capacity building for human resources development in unmanned aircraft system	Meity, India, (CO-PI)	150.91 12/2022-12/2027	(Ongoing)
7	Design and development of an IoT-based environment monitoring and associated risk prediction system for underground coal mining	TEXMin, IIT Dhanbad (Co-PI)	28.84 02/2023 – 02/2025	(Ongoing)
			Total: 671.805	

11. Invited Talk

Sl. No.	Title of Talk	Institute/country	year
1.	Invited speaker on workshop on IoT	GIET University	2019
2.	Invited speaker on workshop on IIoT & Industry 4.0	ABIT, Cuttack	2019
3.	Coordinator for short term course Practical Aspect of Smartcity Application	NIT Rourkela, India	2018
4.	Coordinator for short term course Android App for Smartcity Application	NIT Rourkela, India	2019
5.	Coordinator for Workshop on IoT Cloud Management for CCTV/Video data	NIT Rourkela, India	2019
6.	Invited Speaker at International Conference	Bangkok	2019
7.	IoT for Industrial Application	short-term course on IoT with AI and Data Science, CEP IIT Patna	12 March 2022
8.	FSO LiFi for 6G communication	Short Term Course on Emerging Wireless Communications: 6G and Beyond Sponsored by Science and Engineering Research Board (SERB), India, 2022, NIT Rourkela	24th July 2022

9.	IoT Data Networking	Professional Development Programme on IoT and Machine Intelligence for Industry 4.0, NIT Rourkela	6th June 2022
10	IoT on smart city Application.	workshop (Karyasala), Dept. of EC, NIT Jamshedpur	24th June 2023
11	IoT for Drone Technology	Workshop on Drone Technology, MeiTy, NIT Rourkela, India	18th March 2023
12	IoT for 6G Communication	Short Term Course on 6G Communication, SERB, NIT Rourkela, India	17th July 2023

12. Institute responsibility

Sl. No.	Positions	Year
1.	President Technology club	2017-2020
2.	Faculty advisor	2010-2014
3.	Lab in-charge (Computer Lab)	2014-2026
	Lab in-charge (ISDR & Commnet Lab)	2015-
4.	Chairman departmental accreditation committee	2021-2022
5.	Member departmental purchase committee	2021-
6.	PIC, Summer Internship	2022-2024
7.	Co-PIC, NSS	2022-2024
8.	Member, Manpower Audit	2023

13. Publications

Journal

Papers

[1] Santos Kumar Das, Kalyan P and Sarat Kumar Patra, "Data-path Selection mechanism based on Physical Layer Impairments for WDM Network", International Journal of Signal and Imaging Systems Engineering, Inderscience, Vol. 5, No. 4, pp. 239-245, 2012. (ESCI, IF:0.178)

[2] Santos Kumar Das, Dhanya V. V. and Sarat Kumar Patra, "QoS Based OVPN Connection Setup and Performance Analysis", WSEAS Transactions on Communications, Vol. 11, Issue 8, pp. 275-286, 2012.

[3] Santos Kumar Das and Sarat Kumar Patra, "QoS Aware Optical Virtual Private Network (OVPN) Analytical Control Plane Mechanism," International Journal of Computer and Electrical Engineering, IAP, ISSN: 1793-8163, Vol. 4, No. 2, pp. 336-340, 2012. (ESCI, IF:0.376)

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Connection Selection Mechanism," International Journal of Computer and Electrical Engineering, IAP, ISSN: 1793-8163, Vol. 4, No. 2, pp. 331-335, 2012. (ESCI, IF:0.376)

[5] Santos Kumar Das and Sarat Kumar Patra, "Optical Power Aware Quality Analysis for the Selection of Optimal OVPN Connection over WDM Network," IETE Technical Review, Taylor & Francis, Vol. 29, No. 6, pp. 492-498, 2012. (SCIE, IF:1.932)

[6] Santos Kumar Das, A. K. Samantray and Sarat Kumar Patra, "Hybrid Crosstalk Aware Q-Factor Analysis for Selection of Optical Virtual Private Network Connection," International Journal of Electronics, Taylor & Francis. Vol. 103, No. 1, pp. 113-129, 2016. (SCIE, IF:1.457)

[7] M. Saroj Kumar, K. Vinod Kiran, A. Y. Sukhadeve, V. Kumar and S. K. Das, "Transmission Window Partition Mechanism in a Four-wave Mixing Based WDM/DWDM Network," Progress in Electromagnetics Research, Vol. 58, 193–201, 2015. (ESCI, IF:0.258)

[8] S. Sahoo, N. K. Barpanda, K. V. Kiran, V. Kumar, D. Yadav and S. K. Das, "Quality Analysis in Phase Modulated Radio over Fiber in WDM/DWDM Network", Journal of Optical Communications, Volume 38, Issue 2, Pages 153–159, eISSN 2191-6322, ISSN 0173-4911, DOI: https://doi.org/10.1515/joc-2016-0060. (ESCI, IF:0.288)

[9] Vinod Kiran K, Sarath V S, Vikram Kumar, A K Turuk and Santos K Das, "Performance Analysis of Inter-Satellite Optical Wireless Communication," International Journal of Computer Network and Information Security (IJCNIS), MECS, Vol. 4, 22-28, 2017. (ESCI, IF:2.05)

[10] Devendra Kumar Yadav, Karthik Guntha, Jayanthu Singam and Santos Kumar Das," Design of Real-Time Slope Monitoring system using Time-Domain Reflectometry with Wireless Sensor Network," IEEE Sensors Letters, Vol. 3, No. 2, pp.1-4, February 2019. (ESCI, IF:0.694)

[11] Devendra Yadav, Jayanthu Singam, Santos Kumar Das, and Suchismita Chinara; Pragyan Mishra, "A Critical Review on Slope Monitoring Systems with a Vision of Unifying WSN and IoT," IET Wireless Sensor Systems, March 2019, DOI: 10.1049/iet-wss.2018.5197, Print ISSN 2043-6386, Online ISSN 2043-6394. (ESCI, IF:0.587)

[12] Vikram Kumar and Santos Kumar Das, "Physical layer impairment-aware ant colony optimization approach in WDM network", Journal of Optical Communication, De Gruyter, DOI: https://doi.org/10.1515/joc-2019-0209, eISSN 2191-6322, ISSN 0173-4911, August 10, 2020. (ESCI, IF:0.288)

[13] Kappala Vinod Kiran, Subhanesh Perinbaraj, Jayashree Pradhan, Pradeep Kumar Mallick, Ashok Kumar Turuk, Santos Kumar Das, "Machine learning aided switching scheme for hybrid FSO/RF transmission", Intelligent Decision Technology, IOS Press, 14(4): 529-536 (2020). (ESCI, IF:1.0)

[14] Devendra Kumar Yadav, Guntha Karthik, Singam Jayanthu, Santos Kumar Das, and Sanjay Kumar Sharma, "Studying Time Domain Reflectometry to Predict Slope Failure in Open-Cast Mines", Journal of Mining Science, Springer, Vol. 56, No. 5, pp. 760–770, 2020, ISSN 1062-7391 (SCIE, IF: 0.85).

[15] Rashmiranjan Nayak, Umesh ChandraPati, and Santos Kumar Das, "A comprehensive review on deep learning-based methods for video anomaly detection", Image and Vision Computing, Elsevier, Vol. 106, Issue 104078, pp .1-19, 2021, https://doi.org/10.1016/j.imavis. (SCI, IF:3.86)

[16] Devendra Kumar Yadav, Pragyan Mishra, Singam Jayanthu, Santos Kumar Das, and

Sanjay Kumar Sharma, "Application of IoT-Fog based real-time monitoring system for open-cast mines—A survey", IET Wireless Sensor Systems, Vol. 11, Issue. 1, pp.1-21, 2021 https://doi.org/10.1049/wss2.12011. (ESCI, IF:0.587)

[17] K Krishna Rani Samal, Ankit Kumar Panda, Korra Sathya Babu, Santos Kumar Das,"An improved pollution forecasting model with meteorological impact using multiple imputation and fine-tuning approach", Sustainable Cities and Society, Elsevier, vol.70, Article id-102923, 2021. (SCIE, IF:10.696)

[18] K Krishna Rani Samal, Korra Sathya Babu, Santos Kumar Das," Temporal Convolutional Denoising Autoencoder Network for air pollution prediction with missing values, Urban Climate, Elsevier, vol.38, Article id-100872, 2021. (SCIE, IF:6.663)

[19] K Krishna Rani Samal, Korra Sathya Babu, Santos Kumar Das,"Multi-directional temporal convolutional artificial neural network for PM 2.5 forecasting with missing values: A deep learning approach", Urban Climate, Elsevier, vol.36, Article id-100800, 2021. (SCIE, IF:6.663)

[20] K Krishna Rani Samal, Korra Sathya Babu, Santos Kumar Das," Spatio-temporal Multi-output LSTM Autoencoder for Multi-Day Pollution Forecasting", Applied Soft Computing, Elsevier.
https://doi.org/10.1016/j.asoc.2022.109316 (SCIE, IF:8.263)

[21] K Krishna Rani Samal, Ankit Kumar Panda, Korra Sathya Babu, Santos Kumar Das,"Multi-output TCN Autoencoder for Long-term Pollution Forecasting for Multiple sites.",vol.39, Article id-100943 Urban Climate, Elsevier.
https://doi.org/10.1016/j.uclim.2021.100943. (SCIE, IF:6.663)

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https://eudl.eu/doi/10.4108/eai.15-1-2021.168139. (SCI, IF:0.318)

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Applications, Springer, 2022. (https://doi.org/10.1007/s11042-022-13450-6). (SCIE, IF:2.577)

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[35] Samparna Parida and Santos Kumar Das, "Wireless Powered mmWave Cooperative Communication Network", Wireless Personal Communications, Springer, Vol. 129, pp.2945–2957, 2023. https://doi.org/10.1007/s11277-023-10266-x (SCI, IF:2.2)

[36] Goutam Kumar Sahoo, Santos Kumar Das, and Poonam Singh, " Two layered gated recurrent stacked long short-term memory networks for driver's behavior analysis: Sådhanå, Springer Nature, 2023, 48:75 https://doi.org/10.1007/s120 (SCI, IF:1.214)

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[41] Vijaya Kumar Kadha, V V N J Sri Lakshmi Nandikattu, Sambit Bakshi, and Santos Kumar Das, "Forensic Analysis of Manipulation Chains: A Deep Residual Network for Detecting JPEG-Manipulation-JPEG", Forensic Science International: Digital Investigation, 2023 (SCI, IF:2.676)

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Journal of Mechanics in Medicine and Biology, World Scientific Publishing Company, 2023. DOI:10.1142/S0219519423500707235-0070-1. (SCIE, IF:0.883)

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Patents

[1] Santos Kumar Das, "A Technique for combining Traffic Engineering with Data-Path provisioning for the Electro-Optical network", Y04331, I2R, Singapore, August 2003.

[2] Santos Kumar Das, "A methodology for using information quality for sensor selection", Y04035, I2R, Singapore, February 2005.

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[4] Santos Kumar Das, "Data Acquisition System using Information Quality – with Ground Truth Generation Apparatus", Y04034, I2R, Singapore, January 2005.

[5] **Santos Kumar Das, Nalinikant Badapanda, and Rohit Kantheti, "Internet of Things (IoT) enabled sensor calibration system", 201631024455, IP India, 2016. (Granted on 2019).**

[6] **Santos Kumar Das, Abhilash Sahoo, and Subhasis Chand, "Dual Display Apparatus Development Methodology for Generation and Display of E-Book Contents", 201731037027, IP India, 2016. (Granted on 2020).**

[7] **Santos Kumar Das, Ashok Kumar Turuk, Kappala Vinod Kiran, GSR Satyanarayana, and M P Sree Ganesh Kumar Reddy, "Auto Aligned Free Space Optical System, 201931004808", IP India, 07/02/2019. (Granted on 2023, Patent Number: 480749).**

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"Customized detection of smart parking system for smart city", 202031030818, 20/07/2019.

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Book Chapter

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[4] Bikram Kumar and **Santos Kumar Das**, "Physical Layer Impairments (PLI) Aware Lightpath Selection in WDM/DWDM Network," ISBN 978-981-13-0212-1, Lecture Notes on Electrical Engineering 500, ICCCE 2018, Proceeding of International Conference on Communications and Cyber Physical Engineering 2018, Springer, pp. 229-240, 2018.

[5] Smaita Parija, **Santos Kumar Das**, "Subscriber Location Prediction:A Neural Network Approach," Bio-inspired Neurocomputing and Springer Book Series: Studies in Computational Intelligence, vol 903, 22 July 2020, doi.org/10.1007/978-981-15-5495-7_14. Print ISBN 978-981-15-5494-0 Online ISBN 978-981-15-5495-7 [Indexed in Scopus, Web of Science, DBLP and Springerlink.

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16. **Start-up initiation**: Ewarn System Pvt. Ltd on Smart city product development, virtually incubated with IIT Patna and NIT Rourkela incubation cell.

17. **PhD Student Work**

1. Vikram Kumar (514EC1009), 2020: Constraint Based Quality Estimation and Performance Analysis in WDM/DWDM Network

2. K. Krishna Rani Samal (517CS6019), July 17, 2022, Exploring Deep Learning Approach for Air Quality Modeling and Forecasting.

3. Kappala Vinod Kiran (515EC1001), 29th July 2022, Design and Development of Hybrid FSO/RF Communication System with Auto-Tracking Mechanism

4. Devendra Kumar Yadav (517MN1003), 2022, Development of IoT-based Wireless Sensor System for slope stability monitoring in Open-cast mines

5. G S R Satyanarayana (516EC7002), April 2023, A Vehicle Detection Scheme for Heterogeneous and Lane-Less Traffic.

6. Goutam Kumar Sahoo, 2023, Development of Machine Learning-Based Advanced Driver Assistant System for Smart Vehicular Applications.

7. Prashant Deshmukh, 2023, Deep Learning Methods for Vehicle Detection in Mixed and Undisciplined Traffic Environments

8. Priti Mandal (519EC1003), 2023, 4th October 2023, Development of UAV Borne Adaptable Radar Antenna Array for Invader Drone Surveillance System.

18. **Others**

- Coordinator for short term course (5 days) on "Practical Aspect of Smartcity Application", 21 May 2018 to 25 May 2018.
- Coordinator for short term course (10 days) on "Android App for Smartcity Application", 01 Jun 2018 to 10 Jun 2018.
- Coordinator for Workshop (5 days) on "IoT Cloud Management for CCTV/Video data", 2019, (28/03/2019 to 1/04/2019)
- Co-coordinator for short term course on "Modern Communication System for 4G and beyond", June 2012
- Invited Speaker at International Conference ISCC-2019 held on 27-28 Jun, 2019 at Bangkok.
- Coordinator of a sponsored Project from Department of Electronics and Information Technology (DeitY), India
- Course teacher for short term course on "Embedded System", December 2011.
- Invited speaker for short-term course on IoT with AI and Data Science hosted by CEP IIT Patna, 11th March 2022
- FSO LiFi for 6G communication: Five day Online Short Term Course on Emerging Wireless Communications: 6G and Beyond Sponsored by Science and Engineering Research Board (SERB), India 09 th 13 th May 2022, NIT Rourkela
- IoT Data Networking, Professional Development Programme on IoT and Machine Intelligence for Industry 4.0 08 Jun 2022, NIT Rourkela
- Coordinator for Boot-camp Training Program on Drone Technologies using KK Board and Pixhawk, 18 Mar 2023 - 22 Mar 2023, NIT Rourkela

- Program committee member of INDICON-2023 (20th India Council International Conference)

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