

Bio-data

Prasanta K. Jana

Senior Member, IEEE, USA

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Personal Data

Current Position: Associate Professor

Affiliation: Indian School of Mines, Dhanbad

Address: Department of Computer Science and Engineering
Indian School of Mines, Dhanbad 826 004, India

Date of Birth: 12 January, 1961

Nationality: Indian

Professional Qualifications

- Ph. D in Computer Engineering, Jadavpur University, 2000
- M. Tech in Computer Science, University of Calcutta, 1987

Teaching Experience

(20 + years)

- Indian School of Mines, Dhanbad: Associate Professor 31.05.2008 Till Date
- Indian School of Mines, Dhanbad: Assistant Professor 21.11.2000 – 30.05.2008
- Birla Institute of Technology, Mesra: Associate Professor 01.03.1997 – 20.11.2000
- Birla Institute of Technology, Mesra: Assistant Professor 01.08.1990 – 28.02.1997
- Birla Institute of Technology, Mesra: Associate Lecturer 31.10.1989 – 31.07.1990

Research Interests

Parallel Algorithms, Optoelectronic Parallel Computing,
Interconnection Networks, Data Clustering, Wireless Sensor Networks

Research Projects

- 1) "Designing efficient algorithms for computational biological problems" funded by ISM University. Status: Completed in 2008, **Role: Principal Investigator**
- 2) "Designing clustering algorithms for biological data" funded by CSIR, India. Status: Ongoing, **Role: Principal Investigator**
- 3) "Studies on Optimal Deployment of Wireless Sensor Network and Power Efficient Data Routing in Underground Coal Mine". This is a joint project with ISI, Kolkata and CIMFR, Dhanbad, Submitted to DST, New Delhi, **Role: Principal Investigator.**

Ph. D Students

- 1) Sri Dheeresh K. Mallick (Thesis submitted)
- 2) Sri Keny T. Lucas (Thesis submitted)
- 3) Sri Sudhanshu Jha (Ongoing)
- 4) Sri Damodar Reddy Edla (Ongoing)

Awards and Honours

- *Senior Member, IEEE and IEEE Computer Society, USA*
- 1st position in Mathematics Honours (Part-I) in Ramakrishna Mission Vidyamandira, Belur.
- 1st position in Mathematics Honours (Part-II) in Ramakrishna Mission Vidyamandira, Belur.

Recent Professional Activities

1. Reviewers of Scholarly Journals:

- J. of Parallel & Distri. Comp. (2006-2007, 2009-2010)
- J. of Supercomputing (2008-2009)
- IEEE Trans. on Parallel & Distri. Systems (2007)
- IEEE Comm. Letters (2007)
- Informatica (2007)
- Pattern Recognition (2005-2006)
- Intl. J. of Computers and Applications (2006, 2009)

2. **Co-Chair:** National Seminar on Recent Advances in Information Technology, 2009 (RAIT09) at ISM University, India

3. **Convener:** 1st Workshop on Parallel & Distributed Computing, 2008 (WPDC-08) at ISM University, India

4. **Convener:** National Seminar on Recent Advances in Information Technology, 2007 (RAIT07) at ISM University, India

5. **Associate Editor:** International Journal of Computer Engineering and Information Technology

6. **Program Committee Members:** International conferences: ICCTA-07, EAIT-06, IWLSC-05 and IWDC-04. National Seminars: RAIT-09, RAIT-07, WPDC-08

7. Co-edited Books / Volumes:

- i) Recent Advances on Information Technology (Proceedings of the National Seminar RAIT-2007), Allied Publishers Pvt. Ltd., New Delhi, 2007
- ii) Recent Advances on Information Technology, (Proceedings of the National Seminar RAIT-2009), Allied Publishers Pvt. Ltd., New Delhi, 2009

8. Books Reviewed:

- i) Advanced Computer Architecture by Hwang, McGraw Hill, 2008
- ii) Comp. Arch. and Parallel Processing by Hwang and Briggs, McGraw Hill, 2008
- ii) C & Unix Programming, Tata Mc-Graw Hill, New Delhi, 2003

9. **Courses Developed:** Parallel & Distributed Processing, Algorithm Design & Analysis, Data structures, Compilers for UG and PG levels at ISM University

10. **Academic Visits:**

- i) Las Vegas, USA in July 2008
- ii) Scientist at Adv. Computing and Microelectronics Unit, Indian Statistical Institute, Kolkata, 2003.
- iii) University of Aizu, Wakamatsu, Japan in February 2003

11. **Invited Talks:**

- i) “Parallel Algorithms on Optoelectronic Computers” at BIT, Mesra, India, 2008
- ii) At UGC-Academic Staff college, Ranchi University, India, 2006
- iii) “Parallel processing with Optoelectronic Computers”, at CDAC, Kolkata, 2005
- iv) “Parallel & Distributed Computing” at DSMS College, Durgapur, India, 2005
- v) Member of Board of Course of Studies, St. Xavier’s College, Ranchi, India 2006

12. **Activities at ISM:**

- i) Member of Research Council
- ii) Member of Board of Course of Studies
- iii) Member of Computer Committee
- iv) Member of Library Committee
- v) Member of Website Committee
- vi) Member of Collaborative / MOUs
- vii) Member of IIIT Counseling

Professional Membership

- *Senior Member, IEEE and IEEE Computer Society, USA*
- Member of ISTE, India

List of Publications

Books / Conf. Proceedings

1. P. K. Jana et al. *Recent Advances on Information Technology, (Proceedings of the National Seminar (RAIT-2007))*, Feb. 26-27, 2007, ISM University, Dhanbad, Allied Publishers Pvt. Ltd., New Delhi, 2007.
2. C. Kumar, S. Mukhopadhyay, G. P. Biswas and P. K. Jana, *Recent Advances on Information Technology, (Proceedings of the National Seminar (RAIT-2009))*, Allied Publishers Pvt. Ltd., New Delhi, 2009.

International Journals / Edited Volumes

3. K. T. Lucas and P. K. Jana “Sorting and routing on OTIS-Mesh of Trees,” Appearing in June issue of *Parallel Processing Letters (World Scientific)*, 2010.
4. S. K. Jha, P. K. Jana, R. Yadav, B. Sinha, S. Srivastava, “Improved algorithms for balanced ring formation for fault tolerance in a 2D-Mesh,” Appearing in *Intl. Journal of Computers and Applications (ACTA press)*, Vol. 32, No. 3 in 2010.
5. S. K. Jha and P. K. Jana “Parallel Algorithm for Time Series Based Forecasting on OTIS-Mesh” *International Journal of Computer Applications* (0975 - 8887), Vo. 1, No. 26, pp. 73-80, 2010.
6. N. Kumar, R. Kumar, D. K. Mallick and P. K. Jana, “Hamiltonicity of a General OTIS Network,” appearing in *Lecture Notes in Computer Science, LNCS 5935 (Springer), Heidelberg*, pp. 459–465, 2010.
7. P. K. Jana and Azad Naik, “An upper bound analysis for conflict graph construction in a galled tree problem” Appearing in *Intl. Journal of Advanced Computer Engineering*.
8. P. K. Jana, Mukha Prasad and Ayush Raj, “An upper bound analysis for conflict graph construction in a galled tree problem” Appearing in *Intl. Journal of Advanced Computer Engineering*.
9. K. T. Lucas and P. K. Jana “Parallel algorithms for finding polynomial roots on OTIS-Torus,” *J. of Supercomputing (Springer)* DOI 10.1007/s11227-009-0312-7, (available online from 7 July 2009).
10. P. K. Jana and Koushik Sinha “Permutation Algorithms on Optical Multi-Trees,” *Computers and Mathematics with Applications (Elsevier Science)*, Vol. 56, 2008, pp. 2656–2665.
11. K. T. Lucas, D. K. Mallick and P. K. Jana “Parallel algorithm for conflict graph on OTIS triangular array,” *Lecture Notes in Computer Science, LNCS 4904, (Springer), Heidelberg*, pp. 274-279, 2008.

12. D. S. Rao, G. N. Kumar, D. K. Mallick and P. K. Jana “Parallel construction of conflict graph for phylogenetic network problem,” *Lecture Notes in Computer Science*, LNCS 4815 (**Springer**), Heidelberg, pp. 398-405, 2007.
13. P. K. Jana, “Polynomial Interpolation and Polynomial Root Finding on OTIS-Mesh,” *Parallel Computing* (**Elsevier Science**), pp. 301-312, Vol. 32, No. 4, 2006.
14. P. K. Jana and B. P. Sinha “An Improved parallel prefix algorithm on OTIS-Mesh,” *Parallel Processing Letters* (**World Scientific**), pp. 429-440, Vol. 16, No. 4, 2006.
15. P. K. Jana, “Multimesh of trees with its parallel algorithms,” *Journal of System Architectures* (**Elsevier Science**), pp. 193-206, Vol. 50, No. 4, 2004.
16. P. K. Jana, B. D. Naidu, S. Kumar, M. Arora, and B. P. Sinha, “Parallel prefix computation on extended multi-mesh network,” *Information Processing Letters* (**Elsevier Science**), pp. 295-303, Vol. 84, No. 6, October 2002.
17. P. K. Jana, “Forecasting on a tree with additional ring connections,” *Advances in Modeling* (**France**), pp. 15-24, Vol. 7, No.3, 2002.
18. P. K. Jana and B. P. Sinha, “Fast parallel algorithms for Graeffe’s root squaring technique,” *Computers and Mathematics with Applications*, (**Pergamon-Elsevier**), pp. 71-80, Vol. 35, No. 3, 1998.
19. P. K. Jana, “Polynomial interpolation on a mesh of trees,” *Advances in Modeling and Analysis* (**France**), pp. 31-38, Vol. 4, No. 1,2, 1999.
20. P. K. Jana and B. P. Sinha, “Fast parallel algorithms for forecasting,” *Computers and Mathematics with Applications*, (**Pergamon-Elsevier**), pp. 39-49, Vol. 34, No. 9, 1997.
21. P. K. Jana and B. P. Sinha, “Efficient parallel algorithms for Lagrange and Hermite interpolation,” *International Journal of Applied Science and Computations* (**USA**), pp. 118-136, Vol. 4, No. 2, 1997.
22. P. K. Jana and B. P. Sinha, “Fast parallel algorithms for polynomial interpolation,” *Computers and Mathematics with Applications*, (**Pergamon-Elsevier**), pp. 85-92, Vol. 29, No. 4, 1995.

National Journals

23. P. S. Bishnu and P. K. Jana, “K-Means algorithm: A survey with special emphasis on microarray data analysis,” *Bioinformatics Trends*, pp. 89-96, Vol. 3, No. 4, 2008.
24. P. K. Jana and Nikesh Kumar, “A new parallel algorithm for sequence alignment,” *Bioinformatics Trends*, pp. 81-88, Vol. 1, No. 4, 2006.
25. Dheeresh K. Mallick and P. K. Jana, “Parallel Algorithm for General Step of some numeric computations” *Journal of CSI*, pp. 2-9, Vol. 35, No. 4, October, 2005.
26. P. K. Jana, A. S. Brahmachary and V. S. Yagnick “Backtrack solution for finding sorted king sequence in a tournament,” *Journal of CSI*, pp. 33-36, Vol. 35, No. 1, 2005.

27. P. K. Jana, K. Srinivas and A. Chattopadhyay, "Parallel generation of Sturm sequence for solving eigen value problem," *Journal of CSI*, pp. 1-7, vol. 31, No. 3, September, 2001.

International Conferences

28. S. K. Jha and P. K. Jana, "A New Distributed Approach for Building Balanced Ring for Fault Tolerance in Mesh Architecture", *Proc. of Intl. Conf. on Methods and Models in Computer Science (ICM2CS09)*, 14-15 Dec. 2009, JNU, New Delhi, pp. 330-333.
29. P. K. Jana and Azad Naik, "An efficient minimum spanning tree based clustering algorithm" *Proc. of Intl. Conf. on Methods and Models in Computer Science (ICM2CS09)*, 14-15 Dec. 2009, JNU, New Delhi, pp. 199-203.
30. K. T. Lucas and P. K. Jana "An Efficient Parallel Sorting Algorithm on OTIS Mesh of Trees," *Proc. IEEE Intl. Advance Computing Conference (IACC'09)* 6-7 March, 2009, Patiala, India, pp. 175-180.
31. D. K. Mallick and P. K. Jana "Matrix Multiplication on OTIS k -ary 2-cube Network," *Proceedings of the International Conf. on Parallel and Distributed Processing Techniques and Applications (PDPTA'08)*, Las Vegas, Nevada, USA, 13-17 July, 2008, pp. 224-228.
32. D. K. Mallick and P. K. Jana "Parallel Prefix on Mesh of Trees and OTIS Mesh of Trees," *Proceedings of the International Conf. on Parallel and Distributed Processing Techniques and Applications (PDPTA'08)*, Las Vegas, Nevada, USA, 13-17 July, 2008, pp. 359-364.
33. D. K. Mallick, K. T. Lucas and P. K. Jana "Parallel Lagrange Interpolation on Augmented Optical Multi-trees (OMULT)," *Proceedings of International Conference on Emerging Applications of IT (EAIT-06)*, Feb. 10-11, 2006, Science City, Kolkata.
34. P. K. Jana, "Parallel Sequence Alignment: A Lookahead Approach," *Pattern Recognition and Machine Intelligence: Lecture Notes in Computer Science (Springer)*, Heidelberg, pp. 636-639, 2005.
35. P. K. Jana, "Polynomial interpolation on OTIS-Mesh optoelectronic computers," *Distributed Computing-IWDC 2004: Lecture Notes in Computer Science (Springer)*, Heidelberg, pp. 373-378, 2004.
36. P. K. Jana, "Improved Parallel Prefix Computation on Optical Multi-Trees," *Proceedings of IEEE Indicon 2004*, IIT Kharagpur, India, 20 - 22 Dec. 2004, pp. 414-418.
37. P. K. Jana and Koushik Sinha "Bit reversal permutation on optical multi-trees (OMULT)," *Proceedings of 12th International Conference on Advanced Computing and Communications (ADCOM 2004)*, Ahmedabad, India, 15-18 December 2004.

38. P. K. Jana and Pravin C. Gokina "Parallel forecasting algorithm on linear array," *Proceedings of 7th International Conference on Information Technology(CIT 2004)*, Hyderabad, India, 20-23 December 2004.
39. D. Mondal and P. K. Jana, "Neighborhood Property of OTIS-Mesh Optoelectronic Computer," *Proc. of 7th Intl. Symposium on Parallel Architectures, Algorithms and Networks ISPAN-04 (IEEE)*, Hong Kong, 10-12 May 2004 pp. 458-462.
40. P. K. Jana, "A neural network based time series forecasting," *Proc. of Intl. Conf. on Intelligent Sensing and Information Processing ICISIP-04 (IEEE)*, Chennai, 4-7 January 2004, pp.329-331.
41. Swagta Saha and P. K. Jana, "A Parallel Algorithm for Medial Axis Transformation," *Parallel and Distributed Processing and Applications, Lecture Notes in Computer Science, (Springer)* 2003, pp. 356-361.
42. Kaushik Chakraborty and P. K. Jana, "Parallel Evaluation of Chebyshev Polynomials: A Cyclic Reduction Approach" *Proceedings 3rd International Conference on Information Technology, CIT' 2002*, Bhubaneswar, India, December 21-24, 2002.
43. P. K. Jana, "Fast parallel algorithms on multi-mesh of trees" Recent Advances in Computing and Communications, (*Proceedings of the 8th Intl. Conf. on Adv. Comp. and Comm. (ADCOM '2000)*), December 14-16, 2000, Cochin, India), Bhabani P. Sinha and Rajiv Gupta (Eds.), New Delhi: Tata McGraw-Hill, 2001.
44. S. Kumar, M. Arora and P. K. Jana, "Constant time parallel algorithm for submesh allocation and job scheduling on partitionable mesh connected system (PMCS)" *Proc. of 3rd Intl. Conf. on Information Technology*, Bhubaneswar, India, Dec. 20-23, 2000.
45. P. K. Jana and J. Dattagupta, "Mapping algorithms on augmented tree (AT)," in Advances in Computing and Communications, (*Proceedings of the 7th Intl. Conf. on Adv. Comp. and Comm. (ADCOM '99)*), December 20-22, 1999, Roorkee, India), Tata McGraw-Hill, pp. 172-176, 2000.
46. S. Kumar, M. Arora and P. K. Jana, "Efficient parallel prefix computation and list ranking on Multi-mesh (MM) topology," in *Proceedings of the 7th Intl. Conf. on Adv. Comp. and Comm. (ADCOM '99)*, Dec. 20-22, 1999, Roorkee, India), pp. 73-77, 2000.
47. P. K. Jana, "Finding polynomial zeros on a multi-mesh of trees (MMT)," *Proceedings of the 2nd Intl. Conf. on Information Technology (CIT '99)*, December 20-22, 1999, Bhubaneswar, India), pp. 202-206, 2000.
48. P. K. Jana and B. P. Sinha, "Efficient parallel algorithms for finding polynomial zeros," Recent Trends in Advanced Computing, (*Proceedings of the 6th Intl. Conf. on Advanced Computing and Communications (ADCOM '98)*), December 14-16, 1998, Pune, India), P. K. Sinha and Chita R. Das(Eds.), New Delhi : Tata McGraw-Hill, pp. 189-196, 1999.
49. P. K. Jana, "Systolic design for generating Sturm sequence for solving eigen value problems," *Proceedings of International AMSE Conference on Computer Modeling, Simulation and Communication (CMSC-99)*, Jaipur, India December1-3, 1999.

50. P. K. Jana, "Systolic design and algorithm for generating discrete orthogonal polynomials," *Proceedings 4th Australasian Conference on Parallel and Real-Time Systems (PART '97)*, Newcastle, Australia, September 29-30, 1997.
51. A. Mahanti, A. Garg, P.K. Jana, "Polynomial Interpolation on Orthogonal Multiprocessors", *International Conference on Modelling and Simulation (MS'97)*, Australia, October 1997, pp. 11-20.

National Conferences

52. K. T. Lucas and P. K. Jana, "All-to-all broadcast on OTIS-Ring optoelectronic Computer," *Proceedings of the national Seminar on Recent Advances on Information Technology*, Allied Publishers Pvt. Ltd., pp. 171-177, 2007.
53. D. K. Mallick and P. K. Jana, "Finding Hamiltonian cycle of OTIS network with its application to Lagrange interpolation," *Proceedings of the national Seminar on Recent Advances on Information Technology*, Allied Publishers Pvt. Ltd., pp. 51-58, 2007.
54. P. K. Jana, "Some new parallel algorithms on OTIS-Mesh optoelectronic computer" *Proceedings of the Workshop on Internet and Applications*, Indian School of Mines, Dhanbad, 10-20 December, 2003, pp. 292-299.
55. S. Kumar, M. Arora and P. K. Jana, "Parallel algorithm for statistical forecasting on Illiac network" *Mathematical Applications in Social and Industrial Sectors: Narosa*, New Delhi, pp. 319-328, 2001.
56. P. K. Jana, "Solving Numerical Problems on Parallel Computers" *Proceedings of National Seminar on Advances in Mathematical, Statistical and Computational Methods in Science and Technology*, Indian School of Mines, Dhanbad, November 29 – 30, 2001.
57. S. P. Basu, T. Roy Chowdhury, J. Mahapatra and P. K. Jana, "A Practical analysis for the survival of small drug industries," *Proceedings of 17th Asian Congress of Pharmaceutical Sciences and 50th Indian Pharmaceutical Congress Golden Jubilee Commemoration*, Mumbai, India, December 10-13, 1998, pp. 182.
58. P. K. Jana, "Parallel algorithms for generating traversal listings of a tree," *Proceedings of Conference on Graph Theory and Applications*, University of Mumbai, India, April 23-26, 1997.
59. P. K. Jana, "Design of a linear array for generating discrete orthogonal polynomials," *Proceedings of National Symposium on Recent Trends in Computer Applications in Engineering*, Punjab, India, March 8-9, 1996.