

Curriculum Vitae



1. Name : **DR. RAJAT KUMAR PAL**
2. Date of Birth : **09/03/1963**
3. Designation : **Professor**
4. Office Address : **Department of Computer Science and Engineering,
University of Calcutta, Acharya Prafulla Chandra Roy Shiksha Prangan,
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8. Academic/Industrial Experience

Designation	Name of Employer	From	To
Assistant Engineer	WBDCL (KTPP)	August 31, 1988	March 7, 1989
Lecturer	University of Calcutta	March 1, 1994	February 28, 1998
Senior Lecturer	University of Calcutta	March 1, 1998	February 28, 2003
Reader	University of Calcutta	March 1, 2003	February 28, 2006
Associate Professor	University of Calcutta	March 1, 2006	April 29, 2010
Professor	Assam University (A Central University)	April 30, 2010	April 29, 2012
Professor	University of Calcutta	April 30, 2012 (<i>w.e.f.</i> June 30, 2010)	Till Date

9. Academic Qualifications

Institution	Examination Passed	Year of Passing	Class / Division	Subject
Mitra Institution (Main)	Madhyamik	1979	1st Division	General
	Higher Secondary	1981	1st Division	Science
B.E. College, Shibpur	B.E.	1985	1st Class	Electrical Engineering
University of Calcutta	M.Tech.	1988	1st Class	Computer Science and Engineering
IIT, Kharagpur	Ph.D.	1996	Research degree Awarded in Computer Science and Engineering	

10. PhD Thesis Supervision

A. PhD Degree Awarded

#	Name of the Candidate (Year)	Title of the Thesis	University	Principal Supervisor	Joint Supervisor
1.	Dilip Kumar Gayen (2011)	Some Studies on All-Optical Logic based Information Processing with the help of Terahertz Optical Asymmetric Demultiplexer (TOAD) based Interferometric Devices	University of Calcutta	Rajat Kumar Pal	Jitendra Nath Roy
2.	Ajoy Kumar Khan (2014)	Design and Implementation of Efficient Algorithms for 3D VLSI Physical Design	Assam University, Silchar	Sudipta Roy	Rajat Kumar Pal
3.	Jhunu Debbarma (2014)	Analysis and Design of Cross-Layer Architecture for Data Accessibility in MANETs through Power Efficient Routing Protocol	Assam University, Silchar	Sudipta Roy	Rajat Kumar Pal
4.	Arnab Kumar Maji (2015)	Design and Analysis of an Efficient GuesSED Free Sudoku Solver	Assam University, Silchar	Sudipta Roy	Rajat Kumar Pal
5.	Debasis Dhal (2015)	Pin Assignment and Droplet Routing in Digital Microfluidic Biochip	Assam University, Silchar	Sudipta Roy	Rajat Kumar Pal
6.	Sumana Bandyopadhyay (2015)	On the Theory of Perfect Graphs and Some of Their New Applications	University of Calcutta	Rajat Kumar Pal	-
7.	Ranjan Mehera (2015)	Design of Algorithms for Computing Guard Zones for Two- and Three-Dimensional Simple Objects	University of Calcutta	Rajat Kumar Pal	-
8.	Chiranjit Changdar (2017)	Soft Computing Techniques for Solving Different Variants of Travelling Salesman and Knapsack Problem	University of Calcutta	Rajat Kumar Pal	Ghanshaym Mahapatra
9.	Joydeb Ghosh (2018)	Design and Analysis of Algorithms for Solving n Coins Problem	North Bengal University	Ranjit Kumar Samanta	Rajat Kumar Pal
10.	Pijush Kanti Bhattacharjee (2018)	Study on Mutual Authentication Techniques in Fourth Generation (4-G) Mobile Communications	Assam University, Silchar	Sudipta Roy	Rajat Kumar Pal
11.	Sudip Mandal (2018)	The Role of Microarray Data Analysis in Gene Regulatory Network Design	University of Calcutta	Rajat Kumar Pal	Goutam Saha
12.	Maumita Chakraborty (2019)	Studies on Design and Analysis of Algorithms for Computation Related to Trees of a Graph	University of Calcutta	Rajat Kumar Pal	-
13.	Abhinandan Khan (2019)	Some Computational Approaches for Construction of Biologically Relevant Gene Regulatory Networks	University of Calcutta	Rajat Kumar Pal	Goutam Saha
14.	Arpan Chakraborty (2020)	Synthesis of Digital Microfluidic Biochips: Allied Design Issues and Algorithms	University of Calcutta	Rajat Kumar Pal	-

B. Thesis Submitted

#	Name of the candidate	Title of the thesis	University	Principal Supervisor	Joint Supervisor
1.	Suman Das (2020)	Studies on Design Methodologies and Security Analysis of Different Types of S-Boxes for Cryptographic Applications	University of Calcutta	Ranjan Ghosh	Rajat Kumar Pal
2.	Dipankar Kundu (2021)	Formulation of Expertise Retrieval Systems in Community Question Answering Services	University of Calcutta	Deba Prasad Mandal	Rajat Kumar Pal

C. Ongoing

#	Name of the candidate	Title of the thesis	University	Principal Supervisor	Joint (Associate) Supervisor
1.	Swagata Saha	Wire Length Minimization in Multi-Layer Channel Routing for VLSI Circuit Synthesis	University of Calcutta	Rajat Kumar Pal	-
2.	Piyali Datta	Design Synthesis for Microfluidic Biochips: Issues, Optimization, and Algorithms	University of Calcutta	Rajat Kumar Pal	-
3.	Debayan Ganguly	Study on Variants of Nano-Scale Automata	University of Calcutta	Kumar Sankar Ray	Rajat Kumar Pal
4.	Tarak Nath Mandal	Crosstalk Minimization in Two- and Three-Layer Channel Routing	University of Calcutta	Rajat Kumar Pal	Ranjan Mehera (Alak Kumar Datta)
5.	Debapratim Das Dawn	On Processing of Bengali Text: A Study on Word Sense Disambiguation and Document Classification	University of Calcutta	Rajat Kumar Pal	Soharab Hossain Shaikh
6.	Srirupa Dasgupta	Studies on Feature Selection from Microarray Data Set for Disease Diagnosis	University of Calcutta	Goutam Saha	Rajat Kumar Pal
7.	Soumen Roy	Some Studies on Keystroke Dynamics and Its Security Issues	University of Calcutta	Devadatta Sinha	Utpal Roy (Rajat Kumar Pal)
8.	Sunita Roy	Human Face Segmentation and Facial Features Extraction – A Proposed Method	University of Calcutta	Samir Kumar Bandyopadhyay	Rajat Kumar Pal (Ranjan Mehera)
9.	Rituparna Sinha	Detection and Analysis of Some Human DNA Alterations: A Root Cause of Cancer	University of Calcutta	Rajat Kumar De	Rajat Kumar Pal
10.	Sagarika Chowdhury	Design and Testing in Digital Microfluidic Biochips: Algorithms and Optimization	University of Calcutta	Rajat Kumar Pal	Goutam Saha

11. Publications:

A. Books

- A.1. **Rajat Kumar Pal**. *Multi-Layer Channel Routing: Complexity, and Algorithms*. NAROSA Publishing House, New Delhi (Indian Edition, Paperback), CRC Press, Boca Raton, USA, and Alpha Sc. Intl. Ltd., UK (International Editions, Hardbound), Sep. 2000. (ISBN 81-7319-280-4)
- A.2. D. K. Gayen, J. N. Roy, and **R. K. Pal**. *Optics in Computing: All-Optical Logic and Information Processing with Terahertz Optical Asymmetric Demultiplexer (TOAD)*. LAP Lambert Academic Publishing, Saarbrücken, Germany, Nov. 2012. (ISBN-13: 978-3-659-25260-0; ISBN-10: 3659252603; EAN: 9783659252600)

B. SCI/E Indexed Journal Publications

- B.1. **Rajat Kumar Pal** (with S. P. Pal, and A. Pal). An Algorithm for Finding a Non-Trivial Lower Bound for Channel Routing, *Integration: the VLSI Journal* 25, no. 1 (1998): 71–84.
- B.2. **Rajat Kumar Pal** (with D. K. Gayen, and J. N. Roy). All-Optical Adder/Subtractor based on Terahertz Optical Asymmetric Demultiplexer, *Chinese Optics Letters* 7, no. 6 (2009): 530–533.
- B.3. **Rajat Kumar Pal** (with D. K. Gayen, C. Taraphdar, and J. N. Roy). Terahertz optical asymmetric demultiplexer based all optical data comparator. *Journal of Circuits, Systems, and Computers* 19, no. 03 (2010): 671–682.
- B.4. **Rajat Kumar Pal** (with D. K. Gayen, A. Bhattacharyya, C. Taraphdar, and J. N. Roy). All-Optical Binary-Coded Decimal Adder with a Terahertz Optical Asymmetric Demultiplexer. *Computing in Science & Engineering* 13, no. 1 (2011): 50–57.
- B.5. **Rajat Kumar Pal** (with D. K. Gayen, J. N. Roy, and C. Taraphdar). All-optical reconfigurable logic operations with the help of terahertz optical asymmetric demultiplexer. *Optik: International Journal for Light and Electron Optics* 122, no. 8 (2011): 711–718.
- B.6. **Rajat Kumar Pal** (with C. Changdar, and G. S. Mahapatra). An Ant Colony Optimization Approach for Binary Knapsack Problem under Fuzziness. *Applied Mathematics and Computation* 223 (2013): 243–253.
- B.7. **Rajat Kumar Pal** (with C. Changdar, and G. S. Mahapatra). An efficient genetic algorithm for multi-objective solid travelling salesman problem under fuzziness. *Swarm and Evolutionary Computation* 15 (2014): 27–37.
- B.8. **Rajat Kumar Pal** (with C. Changdar, and G. S. Mahapatra). An improved genetic algorithm based approach to solve constrained knapsack problem in fuzzy environment. *Expert Systems with Applications* 42, no. 4 (2015): 2276–2286.
- B.9. **Rajat Kumar Pal** (with S. Mandal, A. Khan, and G. Saha). Reverse Engineering of Gene Regulatory Networks Based on S-Systems and Bat Algorithm. *Journal of Bioinformatics and Computational Biology* 14, no. 03 (2016): 1650010.
- B.10. **Rajat Kumar Pal** (with D. Dhal, P. Datta, A. Chakraborty, G. Saha). Multiple Parallel Assay Operations with Cross Contamination Avoidance in a Given Biochip. *IET Computers & Digital Techniques* 10, no. 5 (2016): 243–253.
- B.11. **Rajat Kumar Pal** (with A. Pal, A. Chaudhuri, and A. K. Datta). Hardness of crosstalk minimization in two-layer channel routing. *Integration: the VLSI Journal* 56 (2017): 139–147.
- B.12. **Rajat Kumar Pal** (with C. Changdar and G. S. Mahapatra). A Genetic Ant Colony Optimization based Algorithm for Solid Multiple Travelling Salesmen Problem in Fuzzy Rough Environment. *Soft Computing* 21, no. 16 (2017): 4661-4675.

- B.13. **Rajat Kumar Pal** (with S. Mandal and G. Saha). Recurrent Neural Network based Modeling of Gene Regulatory Network using Elephant Swarm Water Search Algorithm. *Journal of Bioinformatics and Computational Biology* 15, no. 4 (2017): 1750016.
- B.14. **Rajat Kumar Pal** (with A. Khan and G. Saha). An Approach for Reduction of False Predictions in Reverse Engineering of Gene Regulatory Networks. *Journal of Theoretical Biology* 445 (2018): 9-30.
- B.15. **Rajat Kumar Pal** (with C. Changdar, G. S. Mahapatra, and A. Khan). A Genetic Algorithm based Approach to Solve Multi-Resource Multi-Objective Knapsack Problem for Vegetable Wholesalers in Fuzzy Environment. *Operational Research* (2018): 1-32.
- B.16. **Rajat Kumar Pal** (with A. Chakraborty and P. Datta). Fluid-level synthesis unifying reliability, contamination avoidance, and capacity-wastage-aware washing for droplet-based microfluidic biochips. *IET Computers & Digital Techniques* 13, no. 3 (2018): 166–177.
- B.17. **Rajat Kumar Pal** (with A. Chakraborty and P. Datta). A Low-Cost Fluid-level Synthesis for Droplet-based Microfluidic Biochips Integrating Design Convergence, Contamination Avoidance, and Washing. *Design Automation for Embedded Systems* 22 (2018): 315.
- B.18. **Rajat Kumar Pal** (with M. Chakraborty and S. Chowdhury). Two Algorithms for Computing All Spanning Trees of a Simple, Undirected, and Connected Graph: Once Assuming a Complete Graph. *IEEE Access* 6 (2018): 56290–56300.
- B.19. **Rajat Kumar Pal** (with S. Chowdhury, P. Datta, and G. Saha). An Efficient Multiple Fault Detection Technique in Digital Microfluidic Biochips. *IETE Journal of Research* (2019): 1–14.
- B.20. **Rajat Kumar Pal** (with S. Mandal, and G. Saha). Reconstruction of gene regulatory networks using S-system with a genetic algorithm and flower pollination algorithm hybrid. *International Journal of Bio-Inspired Computation* 13, no. 3 (2019): 169–188.
- B.21. **Rajat Kumar Pal** (with D. Das Dawn, and S. H. Shaikh). A comprehensive review of Bengali word sense disambiguation. *Artificial Intelligence Review* 53, (2019): 4183–4213.
- B.22. **Rajat Kumar Pal** (with S. Das and R. Ghosh). An approach of refining RC4 with performance analysis on new variants. *Sādhanā* 44, no. 11 (2019): 223.
- B.23. **Rajat Kumar Pal** (with M. Chakraborty, S. Chowdhury, J. Chakraborty, and R. Mehera). Algorithms for generating all possible spanning trees of a simple undirected connected graph: an extensive review. *Complex & Intelligent Systems* 5, no. 3 (2019): 265–281.
- B.24. **Rajat Kumar Pal** (with D. Kundu and D. P. Mandal). Preference enhanced hybrid expertise retrieval system in community question answering services. *Decision Support Systems* 129 (2020): 113164.
- B.25. **Rajat Kumar Pal** (with R. Sinha and R. K. De). GenSeg and MR-GenSeg: A novel segmentation algorithm and its parallel MapReduce based approach for identifying genomic regions with copy number variations. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* (2020).
- B.26. **Rajat Kumar Pal** (with A. Khan and G. Saha). Modified half-system based method for reverse engineering of gene regulatory networks. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* 17, no. 4, (2020): 1303-1316.
- B.27. **Rajat Kumar Pal** (with P. Datta and A. Chakraborty). Design optimisation for programmable microfluidic devices integrating contamination removal and capacity-wastage-aware washing. *IETE Journal of Research* 66, no. 6 (2020): 781–796.
- B.28. **Rajat Kumar Pal** (with D. Kundu and D. P. Mandal). Time-aware hybrid expertise retrieval system in community question answering services. *Applied Intelligence* (2021).
- B.29. **Rajat Kumar Pal** (with P. Datta and A. Chakraborty). A predictive model for fluid-control codesign of paper-based digital biochips following a machine learning approach. *IEEE Transactions on Very*

Large-Scale Integration (VLSI) Systems 28, no. 12, (2020): 2584–2597.

- B.30. **Rajat Kumar Pal** (with A. Khan and G. Saha). Controlling the effects of external perturbations on a gene regulatory network using proportional-integral-derivative controller. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* (2020).
- B.31. **Rajat Kumar Pal** (with D. Kundu and D. P. Mandal). Topic sensitive hybrid expertise retrieval system in community question answering services. *Knowledge-Based Systems* 211, (2021): 106535.
- B.32. **Rajat Kumar Pal** (with P. Datta and A. Chakraborty). An integrated co-design of flow-based biochips considering flow-control design issues and objectives. *IETE Journal of Research* (2021).

C. Other Journal Publications

- C.1. **Rajat Kumar Pal** (with A. Pal, D. Kundu, A. K. Datta, and T. N. Mandal). Algorithms for Reducing Crosstalk in Two-Layer Channel Routing. *Journal of Physical Sciences* (ISSN: 0972-8791), vol. 10, pp. 167-177, Dec. 2006.
- C.2. **Rajat Kumar Pal** (with S. Sen Sarma). An Encounter with Graphs. *Journal of Physical Sciences* (ISSN: 0972-8791), vol. 10, pp. 188-200, Dec. 2006.
- C.3. **Rajat Kumar Pal** (with A. Pal, and A. K. Datta). Parallel Crosstalk Minimization Algorithms for Two-Layer Channel Routing. *The ICFAI Journal of Computer Sciences* (Reference # 56J-2007-10-02-01), vol. I, no. 2, pp. 31-44, Oct. 2007.
- C.4. **Rajat Kumar Pal**. RKPianGraphSort: A Graph based Sorting Algorithm. *International Journal of ACM Ubiquity*, vol. 8, issue 41 (16 pages), Oct. 16-22, 2007.
- C.5. **Rajat Kumar Pal**. A Revisit to YACRIT: Yet another Channel Router with Interchangeable Terminals. *Journal of Physical Sciences* (ISSN: 0972-8791), vol. 11, pp. 172-184, Dec. 2007.
- C.6. **Rajat Kumar Pal** (with D. Saha, and S. Sen Sarma). A Mimetic Algorithm for Computing a Nontrivial Lower Bound on Number of Tracks in Two-Layer Channel Routing. *Journal of Physical Sciences* (ISSN: 0972-8791), vol. 11, pp. 199-210, Dec. 2007.
- C.7. **Rajat Kumar Pal** (with A. Pal, and A. K. Datta). Weighted Hamiltonian Path Problem is also NP-Hard. *The ICFAI Journal of Computer Sciences* (Reference # 56J-2007-10-02-01), vol. II, no. 2, pp. 80-82, Apr. 2008.
- C.8. **Rajat Kumar Pal** (with R. Mehera, and S. Chatterjee). Yet another Linear Time Algorithm for Guard Zone Problem. *The Icfai Journal of Computer Sciences* (Reference # 56J-2007-10-02-01), vol. II, no. 3, pp. 14-23, Jul. 2008.
- C.9. **Rajat Kumar Pal** (with S. K. Ghosh, and J. Ghosh). A New Algorithm to Represent a Given k-ary Tree into Its Equivalent Binary Tree Structure. *Journal of Physical Sciences* (ISSN: 0972-8791), vol. 12, pp. 253-264, Dec. 2008.
- C.10. **Rajat Kumar Pal**. Absolute Area Approximation in Channel Routing is NP-Hard. *Journal of Informatics and Mathematical Sciences* (ISSN 0974-875X), vol. 1, nos. 2-3, pp. 121-137, 2009.
- C.11. **Rajat Kumar Pal** (with A. Pal, T. N. Mandal, D. Kundu, and A. K. Datta). Algorithms for Generating Random Channel Instances for Channel Routing Problem. *International Journal of Applied Research on Information Technology, and Computing* (IJARITAC) (ISSN: 0975-8070), vol. 1, no. 1, pp. 106-129, Jan-Apr 2010.
- C.12. **Rajat Kumar Pal** (with A. K. Maji). Yet another Organized Move towards Solving Sudoku Puzzle. *International Journal of Advanced Research, and Computer Science* (IJARCS), ISSN: 0976-5697, vol. 1, no. 3, pp. 370-375, Sep-Oct 2010.

- C.13. **Rajat Kumar Pal** (with J. Ghosh, and S. K. Ghosh). A Revisit to the Eight Coins Problem. *International Journal of Computing and Information Technology* (IJCIT) (ISSN: 0974-696X), vol. 2, no. 1, pp. 1-14, 2010.
- C.14. **Rajat Kumar Pal** (with A. Bhattacharjya). OSGi-based self-configurable multi-layered RFID Reader Communication Protocol. *International Journal of Industrial, and Systems Engineering* (IJISE) (ISSN: 1748-5037), 2011.
- C.15. **Rajat Kumar Pal** (with S. Bandyopadhyay). Minimum Frequency Requirement for a Wireless Communication System in Polynomial Time. *International Journal of Information Processing* (IJIP) (ISSN: 0973-8215), vol. 4, no. 3, pp. 64-73, 2010.
- C.16. **Rajat Kumar Pal** (with P. K. Bhattacharjee). Vehicular Ad Hoc Network in Mobile Communications with Different Routing Protocols. *Assam University Journal of Science and Technology*, vol. 7, no. 2, pp. 29-35, 2011.
- C.17. **Rajat Kumar Pal**. A Revisit to *RKPianGraphSort*. *Assam University Journal of Science and Technology*, vol. 7, no. 2, pp. 66-72, 2011.
- C.18. **Rajat Kumar Pal** (with A. Pal, T. N. Mandal, S. Saha Sau, A. K. Datta, and A. Chaudhuri). Graphs-The Tool to Visualize the Problems in VLSI Channel Routing. *Assam University Journal of Science and Technology*, vol. 7, no. 2, pp. 73-83, 2011.
- C.19. **Rajat Kumar Pal** (with A. Bhattacharjya). Universal RFID Service Framework with Auto-7Configuration using OSGi. *International e-Journal VSRD Technical & Non-Technical Journal* (VSRD-TNTJ) (ISSN: 0976-7967), vol. 2, no. 1, pp. 1-7, 2011.
- C.20. **Rajat Kumar Pal** (with J. Ghosh, P. Senmajumdar, S. Maitra, and D. Dhal). Yet another Algorithm for Solving n Coins Problem. *Assam University Journal of Science and Technology: Physical Sciences and Technology* (ISSN: 0975-2773), vol. 8, no. II, pp. 118-125, 2011.
- C.21. **Rajat Kumar Pal** (with P. K. Bhattacharjee). Mutual Authentication Technique Applying Three Entities in 4-G Mobile Communications. *International Journal of Computer Theory, and Engineering* (IJCTE) (ISSN: 1793-8201), Article #: 401, vol. 3, no. 6, pp. 732-737, 2011.
- C.22. **Rajat Kumar Pal** (with A. Pal, S. Saha Sau, T. N. Mandal, A. K. Datta, and A. Chaudhuri). An Efficient Heuristic to Find Reduced Area VLSI Channel Routing Solutions with Floating Terminals. *Assam University Journal of Science and Technology: Physical Sciences and Technology* (ISSN: 0975-2773), vol. 9, no. II, pp. 55-64, 2012.
- C.23. **Rajat Kumar Pal** (with P. K. Bhattacharjee). Password based Mutual Authentication Technique using Two Entities in 4-G Mobile Communications. *Assam University Journal of Science and Technology: Physical Sciences and Technology* (ISSN: 0975-2773), vol. 9, no. II, pp. 65-74, 2012.
- C.24. **Rajat Kumar Pal** (with M. Chakraborty). Extraction of All Spanning Trees of a Simple Symmetric Connected Graph using Divide-and-Conquer Technique. *Assam University Journal of Science & Technology: Physical Sciences and Technology* (ISSN: 0975-2773), vol. 9, no. II, pp. 112-126, 2012.
- C.25. **Rajat Kumar Pal** (with P. K. Bhattacharjee). Artificial Intelligence based on Authentication Technique using Three Entities in 4G Mobile Communications. *Assam University Journal of Science and Technology: Physical Sciences and Technology* (ISSN: 0975-2773), vol. 10, no. II, pp. 149-159, 2012.
- C.26. **Rajat Kumar Pal** (with J. Debbarma, M. K. Debbarma, and S. Roy). Literature Survey on Cross-Layer Design Architecture for Bandwidth Management in Mobile Ad-hoc Networks. *International Journal of Computer Applications*, vol. 60, no. 7 (2012).

- C.27. **Rajat Kumar Pal** (with A. K. Maji, and S. Roy). A Novel Algorithmic Approach for Solving Sudoku Puzzle in Guessed Free Manner. *European Academic Research* (ISSN: 2286-4822), Romania, vol. 1, no. 6, pp. 1126-1154, 2013.
- C.28. **Rajat Kumar Pal** (with S. Mandal, and G. Saha). Reconstruction of Dominant Gene Regulatory Network from Microarray Data Using Rough Set, and Bayesian Approach. *Journal of Computer Science and Systems Biology*, ISSN: 0974-7230, vol. 6, no. 5, pp. 262-270, 2013.
- C.29. **Rajat Kumar Pal** (with A. K. Maji, and S. Jana). An Algorithm for Generating only Desired Permutations for Solving Sudoku Puzzle. *Procedia Technology*, vol. 10, pp. 392-399, 2011.
- C.30. **Rajat Kumar Pal** (with C. Changdar, and G. S. Mahapatra). Solving 0-1 Knapsack Problem by Continuous ACO Algorithm. *International Journal of Computational Intelligence Studies*, vol. 2, nos. 3-4, pp. 333-349, 2013.
- C.31. **Rajat Kumar Pal** (with S. Mandal, and G. Saha). An Approach towards Automated Disease Diagnosis, and Drug Design Using Hybrid Rough-Decision Tree from Microarray Dataset. *Journal of Computer Science, and Systems Biology* (ISSN: 0974-7230), vol. 6, no. 6, pp. 337-343, 2013.
- C.32. **Rajat Kumar Pal** (with A. K. Maji, S. Jana, and S. Roy). An Exhaustive Study on different Sudoku Solving Techniques. *International Journal of Computer Science Issues* (IJCSI), vol. 11, no. 2, 2014.
- C.33. **Rajat Kumar Pal** (with S. Mandal, and G. Saha). A Comparative Study on Disease Classification using Different Soft Computing Techniques. *The SIJ Transactions on Computer Science Engineering and Its Applications* (CSEA) (ISSN: 2321-2381), vol. 2, no. 3, pp. 59-66, 2014.
- C.34. **Rajat Kumar Pal** (with J. Ghosh, L. Dey, A. Nandy, A. Chakrabarty, P. Datta, and Ranjit Kumar Samanta). An Advanced Approach to Solve Two Counterfeit Coins Problem. *Annals of Pure, and Applied Mathematics* (ISSN: 2279-087X (P), 2279-0888 (online)), vol. 7, no. 1, pp. 77-82, 2014.
- C.35. **Rajat Kumar Pal** (with S. Bandyopadhyay). Selection of k -Disjoint Channels for Advertising with an Aim to Maximize Viewers' Count, and Minimize Cost Constrained by Budget. *Annals of Pure, and Applied Mathematics* (ISSN: 2279-087X (P), 2279-0888 (online)), vol. 7, no. 1, pp. 97-103, 2014.
- C.36. **Rajat Kumar Pal** (with A. Pal, T. N. Mandal, A. Khan, A. K. Datta, and A. Chaudhuri). Two Algorithms for Minimizing Crosstalk in Two-Layer Channel Routing. *International Journal of Emerging Trends & Technology in Computer Science* (ISSN 2278-6856), vol. 3, no. 6, pp. 194-204, 2014.
- C.37. **Rajat Kumar Pal** (with S. Bandyopadhyay). Selection of k -Disjoint Channels for Advertising with an Aim to Maximize Viewers' Count and Minimize Cost Constrained by Budget. *Annals of Pure and Applied Mathematics: Special Issue on Optimization and Fuzzy Mathematics* (ISSN: 2279-087X (Print) and 2279-0888 (Online)), vol. 7, no. 1, pp. 97-103, 2014.
- C.38. **Rajat Kumar Pal** (with D. Dhal, A. Chakraborty, P. Datta, and S. Roy). Fortification of Multiple Parallel Assay Operations with Cross Contamination Avoidance in a Restricted Biochip. *International Journal of Scientific and Engineering Research*, vol. 6, issue 3, pp. 746-755. 2015.
- C.39. **Rajat Kumar Pal** (with S. Mandal, and G. Saha). Neural Network Training using Firefly Algorithm. *Global Journal on Advancement in Engineering and Science*, vol. 1, no. 1, pp. 7-11, 2015.
- C.40. **Rajat Kumar Pal** (with A. Pal, T. N. Mandal, A. Khan, A. K. Datta, and A. Chaudhuri). A Review on Crosstalk Avoidance and Minimization in VLSI Systems. *International Journal of Emerging Technology and Advanced Engineering* (ISSN 2250 – 2459 (Online)), vol. 5, issue 3, pp. 144-150, 2015.
- C.41. **Rajat Kumar Pal** (with R. Mehera, P. Datta, and A. Chakraborty). Advancement in Guard Zone Computation through Detection and Exclusion of the Overlapped Regions. *International Journal of Scientific and Engineering Research* (IJSER) (ISSN 2229-5518), vol. 6, no. 5, pp. 280-288, 2015.

- C.42. **Rajat Kumar Pal** (S. Mandal, A. Khan, and G. Saha). Large-Scale Recurrent Neural Network Based Modelling of Gene Regulatory Network Using Cuckoo Search-Flower Pollination Algorithm. *Advances in Bioinformatics*, vol. 2016, Article ID 5283937, doi: 10.1155/2016/5283937, 9 pages, 2016.
- C.43. **Rajat Kumar Pal** (A. Khan, Sudip M., and G. Saha). Construction of Gene Regulatory Networks Using Recurrent Neural Networks and Swarm Intelligence. *Scientifica*, vol. 2016, Article ID 1060843. doi: 10.1155/2016/1060843
- C.44. **Rajat Kumar Pal** (with P. Datta, A. Dutta, R. Majumder, A. Chakraborty, D. Dhal). A Design of Digital Microfluidic Biochip along with Structural and Behavioural Features in Triangular Electrode Based Array. *Procedia Computer Science*, vol. 93, pp. 183-190, 2016.
- C.45. **Rajat Kumar Pal** (with C. Changdar, and G. S. Mahapatra). A Modified Genetic Algorithm Approach to Solve Constrained Solid TSP with Time Window Using Interval Parameter. *International Journal of Operational Research*, vol. 26, no. 4, pp. 398-421, 2016.
- C.46. **Rajat Kumar Pal** (with C. Changdar and G. S. Mahapatra). A Modified Ant Colony Optimisation based Approach to Solve Sub-tour Constant Travelling Salesman Problem. *International Journal of Mathematics in Operational Research*, vol. 11, no. 3, pp. 310-331, 2017.
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F. Solution Reports / Disclosures towards Patents

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