

Arindam Pal, PhD

DIRECTOR OF DATA SCIENCE AND OPTIMIZATION
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Summary

Arindam Pal is a Director of Data Science and Optimization at Optym, where he makes transportation companies more profitable and efficient through the use of optimization and AI. His research interests are in Algorithms, Artificial Intelligence, Data Science, Optimization, and Machine Learning. He has more than 17 years of industrial research experience in Data Science, Machine Learning, Cyber Security, and Optimization, working for world-class companies like Microsoft, Yahoo!, Novell, CSIRO, Cognizant, Optym, and TCS Research. He has published academic papers in reputed conferences and journals, and was granted patents in various countries like India, USA, and Europe. He is a technical program member for several reputed conferences and technical reviewer for many renowned journals. He earned his Ph.D. in Computer Science from the Indian Institute of Technology Delhi. He is a Senior Member of both ACM and IEEE.

Education

INDIAN INSTITUTE OF TECHNOLOGY DELHI, INDIA
Ph.D., Computer Science and Engineering, 2007 – 2012.
CGPA: 9.2 on a scale of 10.
Thesis: Approximation Algorithms for Covering and Packing Problems on Paths.
Advisors: Professor Amit Kumar and Professor Naveen Garg.

INDIAN INSTITUTE OF SCIENCE BANGALORE, INDIA
Master of Engineering, Computer Science and Engineering, 2000 – 2002.
Graduated with First Class with Distinction.
Thesis: Efficient algorithms for generating all minimum cuts and the Cactus representation of a graph.
Advisor: Professor Ramesh Hariharan.

JADAVPUR UNIVERSITY KOLKATA, INDIA
Bachelor of Engineering, Computer Science and Engineering, 1996 – 2000.
Graduated with First Class with Honors.
Project: Simulator for UML diagrams.
Advisor: Professor Samiran Chattopadhyay.

Highlights

- **I have published 2 books, 5 book chapters, 8 journal papers, and 22 conference papers.**
- **I have *h*-index of 18, *i10*-index of 37, having more than 1156 citations (Google Scholar – September 13, 2024).**
- My papers have been published in **top conferences and journals** – ACM SIGIR Conference on Research and Development in Information Retrieval, ACM Conference on Information and Knowledge Management, ACM/IEEE Joint Conference on Digital Libraries, IEEE International Conference on Robotics and Automation, ACM Transactions on Computing for Healthcare, IEEE Transactions on Information Forensics and Security, Information Processing and Management, Theoretical Computer Science, and Journal of Combinatorial Optimization.
- **I have obtained more than \$1.2 million AUD/CAD research grants from different agencies in Australia and Canada.**
- I have supervised 2 PhD students and more than 10 Bachelors and Masters students.
- **I have been granted 4 US, 1 Australian, and 1 Indian patents, and have filed 15 patents in the United States, European Union, and India.**

- I have given more than 40 invited talks in Australia, India, the United States, and Italy.
- I am a member of the technical program committee of several renowned data science and machine learning conferences, KDD, WSDM, The Web Conference, ECML PKDD, ACL, SDM, PAKDD, BigData.
- I am a Senior Member of both ACM and IEEE.
- I have extensive software development, people management, and team leadership experience in world-class companies like Microsoft, Yahoo!, and TCS.

Expertise Artificial Intelligence, Data Science, Machine Learning, Optimization.

Programming C, C++, C#, Java, Python, R, MATLAB, PyTorch, TensorFlow, SQL.

Tools Tableau, PowerBI, QlikView, Git, Bitbucket, Confluence, Jira.

Cloud Hadoop, Spark, AWS, Microsoft Azure, Google Cloud.

Citizenship Australian Citizen.

Experience OPTYM SYDNEY, AUSTRALIA

Since January 2024

Designation: Director of Data Science and Optimization.

Work Area: Data Science, Machine Learning, Operations Research, Optimization.

Description: Efficiently solving real-world transport problems using Artificial Intelligence and Optimization algorithms.

- Demonstrated experience in designing, implementing and deploying scalable AI and Optimization models in production environments.
- Strong technical understanding of Machine Learning and Deep Learning algorithms like Random Forests, SVM, Transformers, CNN, and LSTM.
- Practical experience with latest technologies like Large Language Models and Generative AI.
- Proficient with advanced optimization techniques like convex/mixed-integer programming, cutting-plane algorithms, and branch-and-bound methods.
- Working on multi-robot task allocation, graph compression, vehicle routing, and ride sharing problems.
- Proven experience in designing data collection, annotation, and systematic evaluation for developing and maintaining production systems.
- Commitment to stay up-to-date with the field, apply academic research to solve complex business problems, and bring them into production.
- Strong publication record as the lead author in top-tier journals and conferences.
- More than 17 years of experience of leading and mentoring senior and early-career scientists.

DATA61, CSIRO
November 2019 – November 2023

SYDNEY, AUSTRALIA

Designation: Senior Research Scientist.

Research Area: Artificial Intelligence, Cyber Security, Machine Learning.

Description: **Phishing and spam detection:** Phishing is the fraudulent attempt to obtain sensitive information or data, such as usernames, passwords, credit card numbers, or other sensitive details. We designed customised machine learning algorithms PhishZip and PhishSim (based on document compression and clustering) to detect phishing and spam emails, messages, and websites. The techniques are very useful for detecting phishing and spam, improving the accuracy, precision, and recall by percentages ranging from 11% to 27%.

Personal Information Factor: We received a \$1 million AUD grant for the project, which was a merit winner in the Technology Platform Solution category at the NSW iAwards 2022. The partners were CSIRO's Data61, the Government of New South Wales, the Government of Western Australia, the Australian Computer Society (ACS), and the Cyber Security Cooperative Research Centre. The goal was to design a metric for checking the level of privacy in a public dataset, and to modify it so that it satisfies the desired level of privacy. We used linkage attack analysis, information theory, probability theory, and differential privacy. This tool is being used by the Department of Customer Service, NSW for releasing their COVID-19 dataset. It is also used by Transport for NSW for publishing their Opal card data. The Australian Bureau of Statistics has recommended the use of PIF for publishing microarray data.

Anomaly and fraud detection: I have used machine learning algorithms to detect anomaly and fraud in credit card transactions and other data. There are very few anomalies in a typical dataset. We used sophisticated ideas and techniques to detect these novel anomalies.

Organised a **Cybersecurity Seminar Series** and hosted cybersecurity experts from Australia, USA, Europe and India.

Mentored Early Career Researchers and software engineers through CSIRO's Mentoring Program.

Participated in CSIRO's STEM in School program.

UNIVERSITY OF NEW SOUTH WALES

SYDNEY, AUSTRALIA

January 2021 – January 2023

Designation: Conjoint Senior Lecturer.

Research Area: Artificial Intelligence, Cyber Security, Machine Learning.

Description: I am a Conjoint Senior Lecturer in the School of Computer Science and Engineering at UNSW Sydney. My responsibilities include teaching courses, supervising PhD students, and mentoring Bachelors and Masters students.

A new phishing detection system: Phishing is a fraudulent attempt to obtain sensitive information such as usernames, passwords, and credit card details by disguising oneself as a trustworthy entity via electronic communication. By combining different algorithmic techniques, researchers at Data61 (myself) in collaboration with the University of New South Wales (UNSW) and Cyber Security Cooperative Research Centre (CSCRC), are using file compression to efficiently and successfully identify phishing attempts. The tool PhishZip can correctly identify phishing websites with more than 83% accuracy, a marked improvement from current methods. The technology could ultimately prevent significant financial losses for individuals and organisations.

CYBER SECURITY CRC

SYDNEY, AUSTRALIA

November 2019 – November 2023

Designation: Senior Research Fellow.

Research Area: Artificial Intelligence, Cyber Security, Machine Learning.

Description: I solve cyber security problems faced by Australian federal government, state governments, and software companies. Some of the projects are: apply-

ing different machine learning algorithms to detect phishing and spam webpages, design of a personal information factor, studying myth and rumour propagation in social networks during COVID-19.

TCS RESEARCH AND INNOVATION KOLKATA, INDIA
March 2013 – October 2019

Designation: Research Scientist.

Description: I worked on (1) warehouse automation problems such as multi-robot task allocation, bin packing, truck routing, and job scheduling, (2) legal data mining, citation analysis, and patent analysis (both text and network), (3) fault-tolerance and reliability of smart grids, (4) machine learning and optimization problems such as evacuation planning and vehicle arrival time prediction.

YAHOO! INC BANGALORE, INDIA
August 2006 – July 2007

Designation: Technical Lead.

Project: Strategic Data Solutions.

Primary Responsibility: Design and implementation of analytical and instrumentation products.

COGNIZANT KOLKATA, INDIA
August 2005 – July 2006

Designation: Technical Lead.

Project: Retail Technology Consultancy Group.

Primary Responsibility: To define the charter for Performance Engineering and Capacity Planning across the company. In addition, I do architecture, design, and code review for various projects.

MICROSOFT CORPORATION HYDERABAD, INDIA
August 2002 – July 2005

Designation: Software Design Engineer.

Project: Windows Serviceability.

Primary Responsibility: Debugging customer problems in Windows kernel, NTFS, and WDM device drivers. The devices range from USB, SCSI, IEEE 1394.

Project: Microsoft Data Protection Manager.

Primary Responsibility: Design and implementation of UI and Archive Manager.

NOVELL INC BANGALORE, INDIA
February 2002 – July 2002

Designation: Software Development Engineer.

Project: Novell DNS Server.

Primary Responsibility: Design and implementation of DNS Name Resolution Service and integration with Novell eDirectory.

Internship

IBM RESEARCH LABS DELHI, INDIA
May 2011 – July 2011

Designation: Intern Researcher.

Mentor: Venkatesan Chakaravarthy, Sambuddha Roy, Yogish Sabharwal.

Project: Approximation Algorithms for Resource Allocation Problems.

Job Description: I worked on design of efficient approximation algorithms for resource allocation for partial covering of jobs. The goal is to meet the demands of a set of jobs using a set of resources with certain capacities at minimum cost.

YAHOO! RESEARCH LABS
May 2009 – July 2009

BANGALORE, INDIA

Designation: Intern Researcher.

Mentor: Rajeev Rastogi.

Project: Algorithms for XPath wrapper induction and Graph compression.

Job Description: I worked on design of efficient algorithms for compressing the adjacency list representation of graphs, in particular web graphs and social networks. I also worked on designing XPath wrappers for information extraction from HTML and XML documents.

- Achievements** Senior Member of ACM (2016).
Senior Member of IEEE (2015).
Best Poster Award, TCS Technical Architects Conference on Social Media Analytics (2016).
Recipient of Infosys Ph.D. Fellowship for Computer Science at IIT Delhi (2007).
Recipient of IIT institute scholarship for pursuing Ph.D. in Computer Science (2007).
Jagdish Bose National Science Talent Search Award winner 1997.
Indian National Mathematical Olympiad (INMO) Awardee 1995.
Mathematics Talent Search (MTS) Scholarship by NCERT and NBHM in 1994.

- Grants**
- **Automatic Assessment and Protection of Personal Information for Data Sharing**
CO-CHIEF INVESTIGATOR: Dr. Arindam Pal, CSIRO's Data61, Sydney, Australia
GRANT AMOUNT: \$1,000,000 AUD
FUNDING AGENCY: Cyber Security Cooperative Research Center, Government of New South Wales, and Government of Western Australia
DURATION: June 2020 – Now
 - **IC-IMPACTS: Smart Sensor Deployment in Buildings: Evacuation Planning and Energy Management**
CHIEF INVESTIGATOR (INDIA): Professor Krithi Ramamritham, Indian Institute of Technology, Bombay, India
CHIEF INVESTIGATOR (CANADA): Professor Mark Fox, University of Toronto, Canada
CO-CHIEF INVESTIGATOR (INDIA): Dr. Arindam Pal, TCS Research and Innovation, Kolkata, India
GRANT AMOUNT: \$200,000 CAD
FUNDING AGENCY: India-Canada Centre for Innovative Multidisciplinary Partnerships to Accelerate Community Transformation and Sustainability
DURATION: January 2018 – December 2020

Supervision of students

1. **PhD:** Rizka Purwanto
University: University of New South Wales, Sydney, Australia.
PhD Thesis: Adaptive Phishing Detection using Machine Learning.
Duration: August 2018 – March 2022.
2. **PhD:** Paheli Bhattacharya
University: Indian Institute of Technology Kharagpur, India.
PhD Thesis: Application of Artificial Intelligence to Legal Analytics.

Duration: January 2018 – April 2022.

3. **Master of Research:** Wenzheng Li

University: Western Sydney University, Australia.

MRes Thesis: Simulation-Based Analysis of Offloading Algorithms for Vehicular Edge Computing in Urban Mobility Environments.

Duration: January 2022 – June 2024.

4. **PhD Thesis Examination:** Vincent Wang

University: Australian National University, Australia.

PhD Thesis: Practical Privacy-Enhancing Technologies and Applications for Distributed Systems.

Submitted: January 2023.

Interns

Kevin Zhu, University of New South Wales, Sydney, Australia
Mayank Singh, Indian Institute of Technology, Kharagpur
Arpan Mandal, Indian Institute of Engineering Science And Technology, Shibpur
Soumya Sarkar, Indian Institute of Technology, Kharagpur
Abhipsa Basu, Indian Institute of Technology, Kharagpur
Paheli Bhattacharya, Indian Institute of Technology, Kharagpur
Pritam Bhattacharya, Indian Institute of Technology, Kharagpur
Ayan Das, Indian Statistical Institute Kolkata

Courses

Algorithmic Game Theory, Approximation Algorithms, Computational Geometry, Discrete Geometry, Cryptography, Linear Programming and Optimization, Machine Learning, Percolation Theory and Random Graphs, Quantum Computation, Randomized Algorithms.

Teaching

Responsibilities as a Teaching Assistant: Tutoring and marking written and programming assignments.

Advanced Algorithms (PG): January – May 2008

Analysis and Design of Algorithms (UG): August – December 2008, 2009, 2010

Data Structures and Algorithms (UG): January – May 2009, 2011

Discrete Mathematics (UG): January – May 2010, 2012

Formal Languages and Automata Theory (PG): August – December 2011

Publications

• BOOKS

1. *Handbook of Artificial Intelligence for Smart City Development*
Sandhya Makkar, Gobinath Ravindran, Ripon Chakraborty, Arindam Pal
CRC Press, 2023.
2. *International Conference on IoT, Intelligent Computing and Security*
Rajeev Agrawal, Pabitra Mitra, Arindam Pal, Madhu Sharma Gaur
Lecture Notes in Electrical Engineering (982). Springer Nature, 2023.

• BOOK CHAPTERS

1. *Human Activity Recognition: Trends and Challenges*
Dipanwita Thakur and Arindam Pal
Activity Recognition and Prediction for Smart IoT Environments.
2. *Cascading Failures in Smart Grids under Random, Targeted and Adaptive Attacks*
Sushmita Ruj and Arindam Pal
A Practical Guide to the Security and Privacy of Cyber-physical Systems:
Foundation, Application and Limitation.

3. *Human Activity Recognition Systems Based on Audio-Video Data Using Machine Learning and Deep Learning*
Dipanwita Thakur, Suparna Biswas, and Arindam Pal
Internet of Things Based Smart Healthcare.
 4. *On the Vulnerability of Community Structure in Complex Networks*
Viray Parimi, Arindam Pal, Sushmita Ruj, Ponnurangam Kumaraguru, and Tanmoy Chakraborty
Principles of Social Networking: The New Horizon and Emerging Challenges.
 5. *Fault-tolerance and Reliability of Smart Grids*
Sushmita Ruj and Arindam Pal
Encyclopedia of Wireless Networks (2020).
- PEER-REVIEWED JOURNALS
 1. *PHISHSIM: Aiding Phishing Website Detection with a Feature-Free Tool*
Rizka Purwanto, Arindam Pal, Alan Blair and Sanjay Jha
IEEE Transactions on Information Forensics and Security 17: 1497-1512 (2022) – **CORE A***.
 2. *Legal Case Document Similarity: You Need Both Network and Text*
Paheli Bhattacharya, Kripabandhu Ghosh, Arindam Pal and Saptarshi Ghosh
Information Processing and Management Volume 59, Issue 6, 103069 (2022) – **CORE A**.
 3. *Subsampled Randomized Hadamard Transformation based Ensemble Extreme Learning Machine for Human Activity Recognition*
Dipanwita Thakur and Arindam Pal
ACM Transactions on Computing in Healthcare – **CORE A***.
 4. *CGS: Configurable Graph Summarization with Bounded Neighborhood Loss and Query Support*
Shubhadip Mitra, Sona Elza Simon, C Oswald, Arnab Bhattacharya, and Arindam Pal
IEEE Transactions on Knowledge and Data Engineering – **CORE A***.
 5. *Task Allocation using a Team of Robots*
Haris Aziz, Arindam Pal, Ali Pourmiri, Fahimeh Ramezani and Brendan Sims
Current Robotics Reports 1-12 (2022).
 6. *Analysis and Insights for Myths Circulating on Twitter During the COVID-19 Pandemic*
Shuiqiao Yang, Jiaojiao Jiang, Arindam Pal, Kun Yu, Fang Chen and Shui Yu
IEEE Open Journal of the Computer Society, 1: 209 – 219 (2020).
 7. *Editorial: Parallel and Distributed Machine Learning Algorithms for Scalable Big Data Analytics*
Henri Bal and Arindam Pal
Future Generation Computer Systems (2020) – **CORE A**.
 8. *Improved Algorithms for the Evacuation Route Planning Problem*
Gopinath Mishra, Subhra Mazumdar and Arindam Pal
Journal of Combinatorial Optimization, 36(1): 280–306 (2018) – **CORE A**.
 9. *k-means++ under Approximation Stability*
Manu Agarwal, Ragesh Jaiswal and Arindam Pal
Theoretical Computer Science, 588: 37–51 (2015) – **CORE A**.
 - PEER-REVIEWED CONFERENCES
 1. *Hier-SPCNet: A Legal Statute Hierarchy-based Heterogeneous Network for Computing Legal Document Similarity*

- Paheli Bhattacharya, Kripabandhu Ghosh, Arindam Pal and Saptarshi Ghosh
International ACM SIGIR Conference on Research and Development in
Information Retrieval (SIGIR 2020) – **CORE A***.
2. *Identification, Tracking and Impact: Understanding the trade secret of catchphrases*
Jagriti Jalal, Mayank Singh, Arindam Pal, Lipika Dey and Animesh Mukherjee
ACM/IEEE Joint Conference on Digital Libraries (JCDL 2020) – **CORE A***.
 3. *PhishZip: A New Compression-based Algorithm for Detecting Phishing Websites*
Rizka Purwanto, Arindam Pal, Alan Blair and Sanjay Jha
IEEE Conference on Communications and Network Security (CNS 2020).
 4. *Towards IoT Security Automation and Orchestration: Challenges and Future Directions*
Yifeng Zheng, Arindam Pal, Sharif Abuadbbba, Shiva Raj Pokhrel, Surya Nepal and Helge Janicke
IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS 2020).
 5. *HushRelay: A Privacy-Preserving, Efficient, and Scalable Routing Algorithm for Off-Chain Payments*
Subhra Mazumdar, Sushmita Ruj, Ram Govind Singh and Arindam Pal
IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2020).
 6. *Innovation and Revenue: Deep Diving into the Temporal Rank-shifts of Fortune 500 Companies*
Mayank Singh, Arindam Pal, Lipika Dey and Animesh Mukherjee
ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) 2020.
 7. *Methods for Computing Legal Document Similarity: A Comparative Study*
Paheli Bhattacharya, Kripabandhu Ghosh, Arindam Pal and Saptarshi Ghosh
International Workshop on Legal Data Analysis (LDA 2019)
International Conference on Legal Knowledge and Information Systems (JURIX 2019).
 8. *A scalable multi-robot task allocation algorithm*
Chayan Sarkar, Himadri Sekhar Paul and Arindam Pal
IEEE International Conference on Robotics and Automation (ICRA) 2018 – **CORE A**.
 9. *Measuring Similarity among Legal Court Case Documents*
Arpan Mandal, Raktim Chaki, Sarbajit Saha, Kripabandhu Ghosh, Arindam Pal and Saptarshi Ghosh
ACM COMPUTE 2017.
 10. *Automatic Catchphrase Identification from Legal Court Case Documents*
Arpan Mandal, Kripabandhu Ghosh, Arindam Pal and Saptarshi Ghosh
ACM International Conference on Information and Knowledge Management (CIKM) 2017 – **CORE A**.
 11. *Understanding the Impact of Early Citers on Long-Term Scientific Impact*
Mayank Singh, Ajay Jaiswal, Priya Shree, Arindam Pal, Animesh Mukherjee and Pawan Goyal
ACM/IEEE-CS Joint Conference on Digital Libraries (JCDL) 2017 – **CORE A***.

12. *A Graph Analytics Framework for Ranking Authors, Papers and Venues*
Arindam Pal and Sushmita Ruj
International Workshop on Mining and Learning with Graphs (MLG 2016)
ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD) 2016.
13. *Automatic Discovery of Emerging Trends using Cluster Name Synthesis on User Consumption Data*
Tanushyam Chattopadhyay, Santa Maiti, Arindam Pal, Avik Ghose and Arpan Pal
Wiki Workshop, International World Wide Web Conference (WWW 2016).
14. *Preferential Attachment Model with Degree Bound and its Application to Key Predistribution in WSN*
Sushmita Ruj and Arindam Pal
IEEE International Conference on Advanced Information Networking and Applications (AINA) 2016.
15. *Improved Algorithms for the Evacuation Route Planning Problem*
Gopinath Mishra, Subhra Mazumdar and Arindam Pal
9th Annual International Conference on Combinatorial Optimization and Applications (COCOA) 2015.
16. *CITEX: A new citation index to measure the relative importance of authors and papers in scientific publications*
Arindam Pal and Sushmita Ruj
IEEE International Conference on Communications (ICC) 2015 – **CORE A**.
17. *Historical Data based Real Time Prediction of Vehicle Arrival Time*
Santa Maiti, Arpan Pal, Arindam Pal, Tanushyam Chattopadhyay and Arijit Mukherjee
17th IEEE International Conference on Intelligent Transportation Systems (ITSC) 2014.
18. *Analyzing Cascading Failures in Smart Grids under Random and Targeted Attacks*
Sushmita Ruj and Arindam Pal
28th IEEE International Conference on Advanced Information Networking and Applications (AINA) 2014.
19. *k-means++ under Approximation Stability*
Manu Agarwal, Ragesh Jaiswal and Arindam Pal
10th Annual Conference on Theory and Applications of Models of Computation (TAMC) 2013.
20. *Approximation Algorithms for Unsplittable Flow Problems on Paths and Trees*
Khaled Elbassioni, Naveen Garg, Divya Gupta, Amit Kumar, Vishal Narula and Arindam Pal
32nd Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS) 2012.
21. *Scheduling resources for executing a partial set of jobs*
Venkatesan Chakaravarthy, Arindam Pal, Sambuddha Roy and Yogish Sabharwal
32nd Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS) 2012.
22. *A Token-based Distributed Algorithm for Total Order Atomic Broadcast*
Sandip Dey and Arindam Pal

International Workshop on Distributed Computing (IWDC) 2002, Lecture Notes in Computer Science (LNCS) 2571.

Professional Services

– Journals

Technical Reviewer

- * ACM Transactions on Internet Technology
- * ACM Transactions on Knowledge Discovery from Data
- * AMS Mathematical Reviews
- * IEEE Computer Magazine
- * IEEE Transactions on Automation Science and Engineering
- * IEEE Transactions on Big Data
- * IEEE Transactions on Computational Social Systems
- * IEEE Transactions on Dependable and Secure Computing
- * IEEE Transactions on Emerging Topics in Computing
- * IEEE Transactions on Knowledge and Data Engineering
- * IEEE Transactions on Network and Service Management
- * IEEE Transactions on Neural Networks and Learning Systems
- * IEEE Transactions on Signal Processing
- * Information Systems Frontiers
- * Journal of Artificial Intelligence Research
- * Journal of Parallel and Distributed Computing
- * Scientometrics
- * Sadhana
- * Theoretical Computer Science

– Conferences

Organization and Technical Program Committee

- * TPC Member of **ACM International Conference on Web Search and Data Mining (WSDM 2025, 2024, 2023)**
- * TPC Member of **ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2024, 2023, 2022, 2021)**
- * TPC Member of Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2024, 2023)
- * TPC Member of **SIAM International Conference on Data Mining (SDM 2024)**
- * TPC Member of **2023 Conference on Empirical Methods in Natural Language Processing (EMNLP 2023)**
- * TPC Member of **European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD 2023)**
- * TPC Member of **The Annual Meeting of the Association for Computational Linguistics (ACL 2023, 2022, 2021)**
- * TPC Member of IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2024, 2023, 2022, 2021, 2020)
- * TPC Member of **The Web Conference (WWW 2022)**
- * TPC Member of **IEEE (BigData 2022, 2021, 2020, 2019)**
- * TPC Member of (COMSNETS 2024, 2023, 2022, 2021, 2020, 2019, 2018)

- * TPC Member of ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD 2022, 2021, 2020, 2019)
- * **Organizing Committee Member** of Symposium on Artificial Intelligence and Law (SAIL 2023, 2022, 2021)
- * **Organizing Committee Member** of CSCRC CSIRO Data61 Seminar Series

Patents

1. *Methods and systems for planning evacuation paths*
Arindam Pal, Gopinath Mishra and Subhra Mazumdar
UNITED STATES PATENT 9972176B2
2. *Systems and methods for scalable multi-vehicle task allocation*
Chayan Sarkar, Himadri Sekhar Paul, Arindam Pal, Arijit Mukherjee
UNITED STATES PATENT 10948926B2
3. *Multi-dimensional sensor data based human behaviour determination system and method*
Avik Ghose, Arpan Pal, Arindam Pal, Tanushyam Chattopadhyay, Santa Maiti
UNITED STATES PATENT 10,909,462B2
4. *Systems and methods for planning location-sensitive probabilistic behavior-based evacuation paths*
Arindam Pal, Francesco Parisi, Venkatramanan Siva Subrahmanian and Subhra Mazumdar
UNITED STATES PATENT 20170243316A1
5. *Protecting an input dataset against linking with further datasets*
Chamikara Arachchige, Sushmita Ruj, Ian Oppermann, Dongxi Liu, Seung Jang, Arindam Pal
AUSTRALIAN PATENT WO2024065011A1

Selected Talks

1. *New algorithms for graph compression and their applications to real-world problems*
Invited Talk, SACT Seminar Series
University of Sydney, October 4, 2022.
2. *Task Allocation using a Team of Robots*
Invited Talk, Robotics and Autonomous Systems Seminar Series
Data61, CSIRO, Pullenvale, September 9, 2022.
3. *Detecting Phishing Websites: A Tale of Two Algorithms*
Keynote Talk, International Conference on Distributed Computing and Networking (ICDCN 2022), January 7, 2022.
4. *BB.Evac: A Fast Location-Sensitive Algorithm for Probabilistic Behavior-Based Building Evacuation*
Invited Talk, OPTIMA Seminar Series
University of Melbourne, December 15, 2021.
5. *Approximate Counting and Markov Chain Monte Carlo: A Randomized Approach*
School of Computer Science and Engineering
UNSW Sydney, November 11, 18, 25, 2021.
6. *VRank: A New Algorithm to Compute the Influence of Users and Posts in Online Social Networks*
Keynote Talk, 20th IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology, December 14, 2021.
Invited Talk, Missouri University of Science and Technology, USA, September 17, 2021.

7. *Machine Learning Algorithms for Detecting Phishing Websites*

Invited Talk, CDMS Research Seminar

School of Computer, Data and Mathematical Sciences, Western Sydney University, May 13, 2021.