

Curriculum Vitae of Ranjan Pal, Ph.D

CONTACT INFORMATION	Sloan School of Management Massachusetts Institute of Technology 245, First St., Cambridge, MA 02142, USA	Voice: +1-617-258-7459 (Office: E94-1562) E-mail: ranjanp@mit.edu, ranjanpal9@gmail.com Homepage: https://mitmgmtfaculty.mit.edu/rpal/
RESEARCH VISION	My research vision is to realize using the interplay of decision science, operations research, and technology - an enterprise world where <i>every</i> inter-networked enterprise and their supply chain ecosystems can seamlessly and cost-effectively manage cyber risks, while being cyber resilient.	
ACADEMIC POSITIONS	Research Scientist, MIT Sloan School of Management, MIT [January 2023 - Present] Assistant Research Scientist, EECS, University of Michigan Ann Arbor [2019 - 2022]	
AFFILIATE POSITIONS	Working Group Member (Cyber Resilience), World Economic Forum [April 2023 - Present] Affiliate, Trust and Technology Initiative, University of Cambridge , [¹ F'2018 - F'2022] Affiliate Faculty, Michigan Institute for Data Science (MIDAS) [F'2020 - F'2022]	
RESEARCH APPOINTMENTS (SHORT VISITS)	Indian Institute of Management Ahmedabad (IS, Operations Research), SM'2022, SP'2025 Indian School of Business (Information Systems), CLMP Research Fellow, F'2022 Tsinghua University (Electrical Engineering), SM'2019 King's College London (Mathematical Sciences), SM'2019 Indian Institute of Technology Delhi (Computer Science, Management Studies) SM'2017 Indian Institute of Technology Delhi (Electrical Engineering), SM'2018 Indian Institute of Management Ahmedabad (Economics, Operations Research), SM'2018 University of Helsinki (Computer Science), SP'2018 Indian Institute of Technology Delhi (Computer Science, Management Studies) SM'2017 Indian Institute of Management Calcutta (Operations Research), SM'2017 Hong Kong University of Science and Technology (Computer Science), SM'2017	
RESEARCH FOCUS	<i>Solving complex, multi-disciplinary cybersecurity issues via operations research and decision science.</i> I research on (systemic) cyber risk & resilience management in enterprises and their interdependent service networks built upon critical infrastructure driven by IT&IoT information systems. I pioneer mathematical and algorithmic theories guiding cyber-risk & resilience management for such enterprises; their supply chain ecosystems, and validate the theories using system simulation.	
POSTDOC FELLOW (2015-2018)	University of Southern California (ECE); Visiting Fellow University of Cambridge (CS) <i>Viterbi Fellow researching new QoS theory for energy (security) applications, and PII markets.</i>	
PHD EDUCATION	University of Southern California (USC) , Los Angeles, California, USA, (2008-2014) Ph.D. (December, 2014), Computer Science, Provost Ph.D. Fellow (Highest Graduate Honor) • Thesis: <i>Improving Network Security Through Insurance: A Tale of Cyber-Insurance Markets</i> • Thesis Advisors: Leana Golubchik (CS), Konstantinos Psounis (ECE) • Other Committee Members: Viktor Prasanna (ECE), Minlan Yu (CS@Harvard University)	
PHD INTERNSHIPS	Visiting Student Research Scholar (VSRC Program ² , Princeton University (SEAS) , 2010-2011 Research Intern, Deutsch Telekom Labs, Berlin (with Anja Feldmann/Pan Hui), SM'2011/12 Research Intern, Ciena Corporation (Cyan SDN Division) (with Zsolt Haraszti), SM'2013 Research Visitor, Aalborg University (EE), SDR Team (hosted by Ramjee Prasad), SM'2009	

¹SP - Spring, SM - Summer, F - Fall

²I studied content sharing economics with Mung Chiang & Vince Poor; had the privilege talking to John Nash.

PRE-DOCTORAL EDUCATION	University of California Davis , Davis, California, USA, (2005-2007) M.S. (April, 2007), Computer Science, Graduate Fellow • Research: <i>Load Balancing and Edge Criticality Ranking Schemes for Reliable Networking</i> • Mentor: Chen-Nee Chuah (ECE)
	National University of Singapore, MIT , Singapore/Cambridge (USA), (2004-2005) M.S. (July, 2005), Computer Science, Singapore-MIT Alliance Fellow • Research: <i>Optimal RAC-BCL2 Protein Docking Structures using Unsupervised Learning</i> • Mentor: David Hsu (NUS), Tomas-Lozano Perez (MIT)
	Birla Institute of Technology Mesra , Ranchi (India), (1998-2002) B.E. (June, 2002), Computer Science and Engineering • Research: <i>Fuzzy Linear Programming Methods to Optimize System Design and Performance</i> • Mentor: Sandip Datta (BIT Mesra), Somprakash Bandyopadhyay, Asim Pal (IIM Calcutta)
PRE-DOCTORAL EXPERIENCE	Research Intern ³ , Aalborg University , Denmark (Electrical Engineering, CTiF), SM'2008 Research Intern ⁴ , Indian Institute of Management Calcutta (Operations Research), SM'2006 Research Intern ⁵ , Indian Institute of Management Calcutta (Operations Research), SM'2001 Software Engineer, <i>Formal Verification Group</i> , Cadence Design Systems , Delhi NCR, 2002-2004
TEACHING ACTIVITIES	UMichigan (ECE) - Mathematical and Socio-Economic Methods for Cyber-Governance, F'2020/21 USC (CS) - Application of Cryptography to Information Security Problems, F'2016 IIT Delhi (EE, CS) - Game Theory Models for Distributed Network Optimization, SM'2017 IIT Delhi (DMS) - Game Theory Models for Corporate Decision Making, SM'2017 IIM Ahmedabad (IS, OR, Econ) - Network Game Theory, SM'2018 IIM Calcutta (IS, OR, Econ) - Network Game Theory, SM'2017 Teaching Assistant@USC (CS) - Analysis of Algorithms (Graduate), F'2010 - SP'2013
VEDIC ASTROLOGY EDUCATION	Dev Jyotish , Gurgaon, India Certification in <i>Introductory Vedic Astrology</i> (2023) • Course Instructor: Dr. Richa Shukla (Professional Astrologer) Certification in <i>Nakshatra Jyotish</i> (2023) • Course Instructor: Dr. Richa Shukla (Professional Astrologer) Certification (also a Teaching Assistant) in <i>Advanced Vedic Astrology</i> (2024) • Course Instructor: Dr. Richa Shukla (Professional Astrologer) Ranjan Pal is trained, equivalent of <i>Jyotish Alankar</i> and <i>Jyotish Acharya</i> titles, in <i>jyotish</i> .
GRADUATE COURSEWORK	Analysis of Algorithms Artificial Intelligence Applied Cryptography Computer Security and Data Privacy Computer and Communication Networks Cybersecurity Distributed Systems Mobile and Wireless Networks Network Economics and Game Theory

³Reliability analysis in Dynamic Spectrum Access (DSA) networks.

⁴Multi-objective mobile Internet traffic management using lexicographic (integer) optimization methods.

⁵(Fuzzy) linear programming and Analytic Hierarchy Process to optimize performance of networks and systems.

Probability Theory and Its Applications
 Stochastic Processes
 Machine Learning and Graphical Models
 Randomized Algorithms
 Optimization Theory (for Real and Vector Spaces)
 Economics of Information Security
 Performance Modeling of Computer Information Systems
 Entrepreneurship

POST-GRADUATE HONORS (SELECTED)	Invited as an academic leader to the <i>America at 250 Conference (in AI)</i>, Harvard University, May, 2026 Invited as an academic leader to the <i>AI Impact Summit</i> in India, New Delhi, January, 2026 Best Paper Award Finalist in the Application category of the Winter Simulation Conference, 2025 Best Research Mentor Award Finalist at MIT, Academic Year 2024-2025 Author of TOP 25% of papers, Americas Conference on Information Systems (AMCIS), 2025 Best Paper Award Finalist in Theory, Application categories of the Winter Simulation Conference, 2024 Nominated and Invited to the Working Group in Cyber Resilience, World Economic Forum, 2024 Best Paper Award Finalist in the Application category of the Winter Simulation Conference, 2023 Selected in the expert cybersecurity review panel of the US National Science Foundation (NSF), 2024 Awarded CLMP Visiting Faculty Fellowship, Indian School of Business, 2022 Invited as a cyber-risk and cyber-insurance expert to the prestigious Dagstuhl Seminars, Germany, 2021 Awarded Viterbi Postdoctoral Fellowship from USC to conduct independent research, 2015 Among the TOP FIVE TAs in the Viterbi School of Engineering⁶ at USC, AY: 2011-2012 5-Year Provost PhD Fellowship from USC, 2008 [Awarded to $\approx$ 5% of all USC PhD entrants of 2008] 1-Year SMA Fellowship for MS study in EECS, jointly from MIT and NUS, 2004 [30/282 applicants awarded] 2-Year Graduate Fellowship from ECE@CMU for PhD study, 2008 (Declined) 2-Year Graduate Fellowship from CS@UC Irvine for PhD study, 2008 (Declined) Scholarships for PhD Study in UMD College Park (ECE), 2004 (Declined) Scholarships for PhD Study in IIM Ahmedabad (Operations Research), 2004 (Declined) 2-Year Graduate Scholarship from Columbia University (CS) to pursue MS studies, 2004 (Declined)
CONTRIBUTED TALKS	INFORMS Annual Meeting 2001, 2020 SIAM Annual Meeting 2012, 2021 SIAM Conference on Financial Mathematics and Engineering 2012, 2021
PROFESSIONAL MEMBERSHIPS	Member of the IEEE Member of the ACM Member of the American Mathematical Society (AMS) Member of the Game Theory Society Member of the Society for Industrial and Applied Mathematics (SIAM) Member of the Institute for Operations Research and Management Sciences (INFORMS)
EDITORIAL DUTIES	<i>Associate Editor</i> - ACM Transactions on Management Information Systems [2020 - Current] <i>Technical Program Committee (TPC) Member</i> - ACM SIGSIM PADS Conference, 2025 <i>Technical Program Committee (TPC) Member</i> - Winter Simulation Conference (WSC), 2025
PROFESSIONAL ACTIVITIES (REVIEWER)	MIS Quarterly Executive Nature Scientific Data IEEE Transactions on Communications IEEE Transactions on Parallel and Distributed Systems IEEE Transactions on Mobile Computing IEEE Transactions on Services Computing IEEE Access IEEE Transactions on Cloud Computing IEEE Transactions on Network Science and Engineering IEEE Journal on Selected Areas in Communications

⁶Award received for *Analysis of Algorithms* (Graduate Level) offered by the Computer Science department.

Theoretical Computer Science (Elsevier)
 Geneva Papers on Risk and Insurance (Springer Nature)
 European Journal of Operations Research (Elsevier)
 Cambridge Data and Policy Journal (Cambridge University Press)
 Performance Evaluation (Elsevier)
 Oxford Journal of Cybersecurity
 IEEE Transactions on Industrial Informatics
 IEEE Transactions on Information Forensics and Security
 IEEE Transactions on Sustainable Computing
 IEEE Wireless Communications Letters
 ACM Transactions on Management Information Systems
 Computers and Security (Elsevier)
 ACM Transactions on Internet Technology
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
 ACM Journal on Digital Threats: Research and Practice
 Winter Simulation Conference
 ACM SIGMETRICS
 ACM SIGSIM PADS
 IEEE INFOCOM
 IEEE ICDCS
 AIS ICIS,
 AIS AMCIS

INDUSTRY
 CONSULTING

Technical Advisor (Cyber-Risk Analysis) - **QxBranch LLC**, (2016 - 2019)
 Technical Advisor (Cyber-Risk Analysis) - **Accel**, (2015-2015)

OTHER SERVICE

National Association of Insurance Commissioners (NAIC), USA - Invited Expert, 2016
National Science Foundation (NSF), USA - Invited Review Panel Expert, 2025

UNIVERSITY SERVICE
 (2019-CURRENT)

Massachusetts Institute of Technology, USA

1. Panel Moderator on *AI Software Supply Chain Security*, CAMS Rapid Response Event, 2025
2. Panel Moderator on *Cybersecurity for Emerging Technology*, CAMS Rapid Response Event, 2025
3. Host and Coordinator, MIT CAMS Weekly Research Seminar Series, 2023 - 2025

University of Michigan Ann Arbor, USA

1. Served on interview panels for incoming ECE faculty candidates
2. Served on non-evaluative interview panels for incoming university-wide faculty candidates
3. Served as judge for the College of Engineering (CoE) Hugh Rumler Award,
4. Served as judge for the College of Engineering (CoE) Engineering Research Symposium (ERS)
5. Served as a reviewer of applications for incoming Ph.D students
6. Served as a GRIN mentor
7. Served as an MWIN mentor

STUDENTS@MIT
 (RESEARCH)

Cynthia Zhang, **Electrical Engineering@EECS**(Graduate Thesis Advisor)
 Konnie Duan, **Computer Science@EECS**
 Tilek Azkerbekov, **Mathematics, EECS**
 Lillian Bluestein, **Computer Science@EECS**
 Yaphet Lemiesa, **Computer Science@EECS**
 Canon Robins, **Computer Science@EECS**
 Karen Li, **Computer Science@EECS**
 Darren Yao, **Computer Science@EECS** (Graduate Thesis Advisor)
 Luisa Pan, **Computer Science@EECS** (Graduate Thesis Advisor)

SMA Nahian, **Computer Science@EECS**
Douglas Granillo, **Computer Science@EECS**

STUDENTS@UM
(RESEARCH)

Peihan Liu (**Graduate School, Harvard (CS)**), *Declined* - Yale, UChicago, Cornell, NYU, USC
Yushi She (**Graduate School, GaTech (CS)**), *Declined* - USC, Cornell, Michigan
Rohan Sequeira (**Graduate School, Viterbi Fellow USC (ECE)**) *Declined* - Purdue
Taoan Lu (**Graduate School, CMU (Mathematical Finance)**), *Declined* - NYU, Cornell, UMich,
National University of Singapore, Nanyang Technological University, USC, Imperial College London
Zhehong Wu (**Graduate School, UofM (ECE)**), *Declined* - UIUC, Columbia, NYU, Northwestern, USC
Yifan Dong (**Graduate School, UofM (ECE)**), *Declined* - UC Berkeley, Georgia Tech, Cornell, UPenn,
UCSD, USC, Columbia
Ziyuan Huang (**Graduate School, UofM (ECE)**), *Declined* - UC Berkeley, UCSD, Cornell
Xinlong Yin (**Graduate School, Georgia Tech (CS)**) *Declined* - USC, UofM
Yixuan Wang (**Graduate School, CMU (CS)**), *Declined* - Columbia
Junhui Li (**Graduate School, CMU (CS)**) *Declined* - USC
Harshith Nagubandi (MS Candidate, transferred to **Graduate School, UCSD (ECE)**)
Vineeth Kotala (**Graduate School, UIUC (Mathematical Finance)**)
Sanjana Prabhu (**Graduate School, CMU (ECE)**), *Declined* - Columbia, UMass Amherst
Charles Light (**Industry, Silicon Labs**)
Yufei Zhu (**Graduate School, UofM (ECE)**), *Declined* - UCSD

STUDENTS@USC/IIT

Mentored Sung-Han Lin in his **CS** PhD (now at **Facebook/Meta**) with Leana Golubchik at USC.
Mentored Chien-Lun Chen in his **ECE** PhD (now at **Amazon**) with Leana Golubchik at USC.
Mentored Aditya Ahuja in his **CS** PhD (now at **TCS Research Labs**) with Vinay Ribeiro at IIT Delhi.

BOOK REVIEWING

Performance Modeling and Design of Computer Systems - **Cambridge University Press**

INDUSTRY LIASON
(INVITED)

Invited expert on cybersecurity to speak with executives of *Michelin Tyres*.

TALK INVITATIONS
(VENUE & TOPIC)

1. **Cybersecurity at MIT Sloan Members Meet**, USA - *AI and Cybersecurity*, 2025
2. **US Department of Homeland Security, CISA**, USA #1 - *AI and Cybersecurity*, 2025
3. **US Department of Homeland Security, CISA**, USA #2 - *AI and Cybersecurity*, 2025
4. **Johns Hopkins, Applied Physics Laboratory**, USA - *AI and Cybersecurity*, 2025
5. **MIT CAMS Anniversary Event**, Cambridge, USA - *Cyber-Risk Management*, 2025
6. **Indian Institute of Management**, Ahmedabad, India - *Cyber Resilience Management*, 2025
7. **All India Institute of Medical Science**, Jodhpur, India - *AI in Healthcare*, 2025
8. **MIT Sloan School of Management**, Cambridge, USA - *Cyber Risk Management*, 2024
9. **American Insurance Group (AIG)**, Cambridge, USA - *Cyber-Risk Management*, 2024
10. **MIT Sloan School of Management**, Cambridge, USA - *Cyber-Resilience Optimization*, 2024
11. **Cybersecurity at MIT Sloan Members Meet**, Cambridge, USA - *Cyber-Resilience Metrics*, 2023
12. **Cybersecurity at MIT Sloan Medical SIG**, Cambridge, USA - *Cyber-Resilience Metrics*, 2023
13. **Academy of Hospital Administration**, Noida, India - *Hospital Cyber-Risk Management*, 2023
14. **Massachusetts Institute of Technology**, Cambridge, USA - *Cyber-Risk Management*, 2022
15. **Indian Institute of Management**, Ahmedabad, India - *Cyber-Risk Management*, 2022
16. **Indian School of Business**, Hyderabad, India - *Cyber-Risk Management*, 2022
17. **Indian School of Business**, Hyderabad, India - *Personal Data Markets*, 2022
18. **University of Michigan (Tech for Social Good Panelist)**-*Privacy Management*, 2020
19. **Schloss Dagstuhl**, Saarland, Germany - *Cyber-Risk Management*, 2021
20. **University of Michigan**, Ann Arbor, USA - *Privacy Management*, 2020

21. **INFORMS Business Analytics 2020**, Denver, USA - *Privacy Management*, 2020 (**Non-Contributed**)
22. **INFORMS Security 2020**, Monterey, USA - *Cyber-Risk Management*, 2020 (**Non-Contributed**)
23. **INFORMS Security 2020**, California, USA - *Privacy Management*, 2020 (**Non-Contributed**)
24. **Google Cloud**, California, USA - *Resource Sharing Economics of Boutique Clouds*, 2020
25. **University of Cambridge**, Cambridge, UK - *Privacy Management*, 2018
26. **Alan Turing Institute**, London, UK - *Privacy Management*, 2018
27. **University of Oxford**, Oxford, UK - *Privacy Management*, 2018
28. **University College London**, London, UK - *Privacy Management*, 2018
29. **Imperial College**, London, UK - *Privacy Management*, 2018
30. **Tsinghua University**, Beijing, China - *Privacy Management*, 2019
31. **King's College London**, London, UK - *Privacy Management*, 2018
32. **King's College London**, London, UK - *Cyber-Risk Management*, 2018
33. **LSE**, London, UK - *Invited Discussion on Cyber-Security and Privacy Economics*, 2018.
34. **Queen Mary University of London**, London, UK - *Privacy Management*, 2018
35. **Nokia Bell Labs**, Helsinki, Finland - *Cyber-Risk Management*, 2018
36. **University of Southern California**, Los Angeles, USA - *Cyber-Risk Management*, 2017
37. **Hong Kong University of Science and Technology**, Hong Kong - *Cyber-Risk Management*, 2017
38. **Indian Institute of Technology**, Delhi, India - *Cyber-Risk Management*, 2019, 2018, 2017, 2016
39. **Indian Institute of Management**, Calcutta, India - *Cyber-Risk Management*, 2019
40. **Indian Institute of Management**, Ahmedabad, India - *Cyber-Risk Management*, 2018
41. **Michigan State University (Criminology)**, Lansing, USA - *Cyber-Risk Management*, 2017
42. **New York University**, New York, USA - *Cyber-Risk Management*, 2015
43. **IBM Research Labs**, India, USA - *Cyber-Risk Management*, 2014
44. **Deutsch Telekom Innovation Labs (T-Labs)**, California, USA - *Cyber-Risk Management*, 2013
45. **Ciena Corporation (Blue Planet Division)**, California, USA - *Cyber-Risk Management*, 2013
46. **Deutsch Telekom Innovation Labs (T-Labs)**, Berlin, Germany - *Cyber-Risk Management*, 2013
47. **Symantec Research Labs**, California, USA - *Cyber-Risk Management*, 2012
48. **Princeton University**, New Jersey, USA - *Cyber-Risk Management*, 2010
49. **EPFL**, Lausanne, Switzerland - *Smart Grid Pricing*, 2011
50. **Nokia-Siemens Networks/IST**, Lisbon, Portugal - *Cyber-Risk Management*, 2009

PUBLICATIONS
(PRACTITIONER)

1. B. Nag*, **R. Pal***, and M. Devnani: Building Trust and Accountability in Medical AI.
Venue: *Forbes(I)*, March 30, 2026,
2. K. Hill*, **R. Pal***, P. Wedge, and E. Pocock: Smart Systems, Blind Spots - Rethinking Insurance for the AI Era.
Venue: *Gallagher Re Article*, March 24, 2026,
3. **R. Pal*** and B. Nag: Cyber-Risk in the Boardroom - Why Judgement Matters More Than Numbers.
Venue: *Forbes(I)*, January 19, 2026.
4. **R. Pal***, A. Tuteja, and B. Nag: Businesses Need Future-Ready LLM Supply Chains.
Venue: *Forbes(I)*, December 30, 2025.

5. **R. Pal***, Y. Lemiesa, and B. Nag: Future-Proofing Your Company from Quantum Cyber Risks.
Venue: *Forbes(I)*, December 12, 2025, Mentioned in **MIT Sloan in the News**.
6. **R. Pal***, C. Robins, and B. Nag: Safeguarding Against the New Frontier of Cyberattacks in AI.
Venue: *Forbes(I)*, November 12, 2025.
7. **R. Pal***, D. Yao, and B. Nag: How Can Companies Secure Their Future with Rise in Agentic AI Adoption
Venue: *Forbes(I)*, October 30, 2025.
8. **R. Pal***, D. Yao, and B. Nag: How Can Companies Secure Their Future with Rise in Agentic AI Adoption
Venue: *Forbes(I)*, October 30, 2025, Mentioned in **MIT Sloan in the News**.
9. **R. Pal***, B. Nag, and S. Mukherjee: Cyber Risk on India's Electric Roads
Venue: *Forbes(I)*, October 16, 2025, Mentioned in **MIT Sloan in the News**.
10. **R. Pal*** and B. Nag: Quantum Risk, National Fallout: Rethinking Cybersecurity Before its Too Late
Venue: *Forbes(I)*, September 30, 2025.
11. **R. Pal***, D. Granillo, and B. Nag: How AI Hallucinations Endanger Software Supply Chain
Venue: *Forbes(I)*, August 28, 2025.
12. **R. Pal***, S. Mukherjee, and B. Nag: Operational Economics Insights to Boost Cyber Resilience
Venue: *Forbes(I)*, August 11, 2025.
13. **R. Pal***, B. Nag, and E. Jain: Why Does Cybersecurity Management in Enterprises Fail?.
Venue: *Forbes(I)*, July 2, 2025, Mentioned in **MIT Sloan in the News**.
14. **R. Pal***, and B. Nag: How to Manage Cyber Risk in AI LLM-driven Pharmaceutical Supply Chains.
Venue: *Forbes(I)*, June 11, 2025, Mentioned in **MIT Sloan in the News**.
15. C. Zhang*, **R. Pal***, and B. Nag: How to Manage GenAI Cyber Risk in Industrial Control Systems.
Venue: *Forbes(I)*, May 9, 2025.
16. **R. Pal***, S. Zeijlemaker, and B. Nag: Importance of Boosting Insurance-driven Cyber Resilience in the Generative AI world
Venue: *Forbes(I)*, March, 10, 2025, Mentioned in **MIT Sloan in the News**.
17. **R. Pal***, Y. Lemiesa, M. Siegel, and B. Nag: How Should Managers use AI for Critical Infrastructure Risk Management?
Venue: *Forbes(I)*, February, 21, 2025, Mentioned in **MIT Sloan in the News**.
18. **R. Pal***, M. Siegel, and B. Nag: How Systemic Cyber Risk Management in Software Supply Chains Works with BOMs
Venue: *Forbes(I)*, December, 24, 2024.

19. **R. Pal***, P. Liu, B. Nag, M. Devnani, and S. Kashyap: Five Challenges to Ensuring Cyber Assurance in the Medical AI Business
Venue: Forbes(I), November, 7, 2024.
20. **R. Pal***, M. Siegel, and B. Nag: Three Action Items for Sustainable Cyber Insurance-Linked Securities Markets
Venue: Forbes(I), August, 27, 2024, Mentioned in MIT Sloan in the News.
21. **R. Pal***, M. Siegel, and B. Nag: Three Things Industrial Control System Enterprises Should Do to Boost Cyber-Resilience.
Venue: Forbes(I), April, 11, 2024, Mentioned in MIT Sloan in the News.
22. **R. Pal*** and B. Nag: Considering Insurance to Manage IoT-driven Catastrophic Cyber-Risk.
Venue: Forbes(I), March, 22, 2024, Mentioned in MIT Sloan in the News.
23. **B. Evans-Pritchard*** (quoted **R. Pal**): India Cyber Feels Reinsurance Capacity Pinch
Venue: (Re)InAsia, March, 10, 2024
24. **R. Pal***, B. Nag, and M. Siegel: Cyber-security Management Landscape of the Indian Automation Industry: Overview, Challenges, Action Points.
Venue: Forbes(I), January, 10, 2024, Mentioned in MIT Sloan in the News.
25. **A. Smith*** (quoted **R. Pal**): Customers Consider Dumping Carriers Over Data Concerns.
Venue: Life Annuity Specialist, Financial Times, December, 4, 2023
26. **R. Pal***, C. Zhang*, M. Siegel, and B. Nag: Why AI in Cybersecurity Needs to be Part of Business Strategy to Boost Resilience?
Venue: Forbes(I), October, 6, 2023, Mentioned in MIT Sloan in the News.
27. **R. Pal***, M. Rodriguez, and B. Nag: The Cyber-Insurance Vision is Failing for Ransomware Attacks in India.
Venue: Forbes(I), September, 12, 2023, Mentioned in MIT Sloan in the News.
28. **R. Pal*** and B. Nag: How Vedic Philosophies Can Help Boost Security in Indian Corporations
Venue: Forbes(I), June, 12, 2023, Mentioned in MIT Sloan in the News.
29. **R. Pal***, B. Nag, and S. Madnick: How Insurance-Linked Securities Can Improve Cyber-Security in India
Venue: Forbes(I), May, 8, 2023, Mentioned in MIT Sloan in the News.
30. **R. Pal***, and B. Nag: Five Ways Indian Medical Administrations Can Boost Hospital Cyber-Security.
Venue: Forbes(I), April, 17, 2023, Mentioned in MIT Sloan in the News.
31. **R. Pal***, and B. Nag: How Should Regulators Policy Cyber-Insurance for Indian Businesses?
Venue: Forbes(I), February, 6, 2023, Mentioned in MIT Sloan in the News.
32. **R. Pal***, and B. Nag: Vedas and Puranas Can Inspire Enterprises to Improve Cyber-Security Posture: A Cultural View of IT Security Governance in the Wake of AIIMS-like Cyber-Attacks.
Venue: The Times of India, January, 5, 2023

33. **R. Pal***, and B. Nag: Cyber-Politics Meets the Statecraft Game.
Venue: The Times of India, October, 30, 2022
34. **R. Pal***, B. Nag, and C. Light: Why Cyber-Security Should Be a Strategy in the Infinite Corporate Game.
Venue: Forbes(I), October, 17, 2022
35. **R. Pal***, and B. Nag: Cyber-Threat Information Sharing Cooperative: Need of the Hour.
Venue: Forbes(I), September, 14, 2022
36. **R. Pal***, and B. Nag: Seven Challenges Against Securing the Systemic Cyber-Space in the Industrial IoT Age.
Venue: Forbes(I), July, 14, 2022
37. **R. Pal***, B. Nag, and C-L. Chen: Seven Commandments of Privacy Governance in Information Capitalist Societies.
Venue: Forbes(I), April, 5, 2022
38. **R. Pal***, B. Nag*, C. Light, Y. Wang, D. Romero, J. Crowcroft, and K. Psounis: Behavioral Economics: Why Indian Urbanites May Transparently Sell Their Data.
Venue: Forbes(I), February, 22, 2022
39. **R. Pal***, B. Nag*, C. Landwehr*, J. Crowcroft, E. Hua, and T. Bandyopadhyay: Will Insurance Improve Cyber-Security Practice for Businesses?
Venue: Forbes(I), January, 25, 2022
40. **R. Pal***, J. Crowcroft*, M. Liu*, S. De*, and B. Nag*: In Defense of a Transparent Data Economy for Data Capitalism.
Venue: Forbes(I), June, 22, 2021
41. **R. Pal***, B. Nag*, J. Crowcroft*, M. Liu*, P. Ghosh*, and S. De*: Fixing the Data Economy, and Economic Inequality.
Venue: The Financial Express, October 26, 2021
42. **R. Pal***, B. Nag*, J. Crowcroft*, M. Liu*, P. Ghosh*, and S. De*: Few Are Averse to Sharing Personal Data.
Venue: The Financial Express, October 27, 2021
43. **R. Pal***, B. Nag*, and R. Sequeira*: It's Time for Cyber-Insurance to Become Personal in the WFH Age.
Venue: Forbes(I), September, 28, 2021
44. **R. Pal*** and B. Nag*: The Feasibility of Cyber-Risk Management to Ensure Social Good.
Venue: Forbes(I), April, 30, 2020
45. **R. Pal*** and B. Nag*: Only Appropriate Data.
Venue: The Economic Times, November, 14, 2019
46. **R. Pal*** and B. Nag*: Women Leadership in the Indian Corporate Sector: A Vedic Insight.
Venue: The Economic Times, December 14, 2021

47. **R. Pal***, S. Biswas, and B. Nag: Negative Runs Can Better the Commerce and Bat-Ball Fairness of T20s.
Venue: The Times of India, July 24, 2021

WEF HIGHLIGHTS
(CONTRIBUTIONS)

1. M. Siegel* (contributed by S. Zeijlemaker, R. Yahalom, **R. Pal**, and M. Ross): Three Key Ways to Make Supply Chains More Resilient to Cyber Risks.
*Venue: World Economic Forum*⁷, April, 23, 2025
2. **N. Perucica*** (contributed by **R. Pal** et.al.): Unlocking Cyber-Resilience in Industrial Environments: Five Principles.
*Venue: World Economic Forum*⁸, November, 27, 2023
3. **K. Ukyab*** (contributed by **R. Pal** et.al.): Facilitating Global Interoperability of Cyber Regulations in the Electricity Sector.
*Venue: World Economic Forum*⁹, November, 18, 2023
4. **K. Ukyab*** (contributed by **R. Pal** et.al.): Response to the White House’s Request on Harmonizing Cybersecurity Regulations.
*Venue: World Economic Forum*¹⁰, October, 23, 2023;

JOURNAL
PUBLICATIONS

1. **R. Pal***, P. Liu, T. Lu, and E. Hua: How Hard is Cyber-Risk Management in IT and OT Systems? A Tale of Conquering the NP-Hardness of Insuring ICSs
Venue: ACM Transactions on Cyber-Physical Systems, 2022, Vol. 6(4)
2. **R. Pal***, X. Yin, R. Sequeira, S. Zeijlemaker, and V. Kotala: How Can Enterprises Quantify and Analyze (Multi-Party) Cyber-Risk in their Industrial IoT Network?
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⁷World Economic Forum Report accepting insight contributions from multiple area experts.

⁸World Economic Forum Report accepting insight contributions from multiple area experts.

⁹World Economic Forum Report accepting insight contributions from multiple area experts.

¹⁰World Economic Forum Report accepting insight contributions from multiple area experts.

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9. C-L. Chen, **R. Pal**, and L. Golubchik: Achieving Transparency Report Privacy in Linear Time.
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10. **R. Pal***, J. Crowcroft, Y. Wang, S. De, M. Liu, P. Hui, S. Tarkoma, A. Kumar, Y. Li, and B. Nag: Preference-Based Privacy Markets. [**Media Attention in The Economic Times**]
Venue: Proceedings of the IEEE Access, 2020, Vol. 8 [**Invited Talk, INFORMS Security Conference, 2020**]
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12. **R.Pal***, P. Hui, and V. Prasanna - On Privacy Engineering in the Smart Micro-Grid.
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Venue: IEEE Transactions on Sustainable Computing, 2017, Vol 1(1).
16. **R. Pal***, N. Sastry, E. Obiodu, S. Prabhu, and K. Psounis: EdgeMart - A Networked OTT Economy on the Wireless Edge for Saving Multimedia IP Bandwidth.
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 2. C. Zhang, **R. Pal***, G. Bassett, and M. Siegel: Risk Driven Strategic Resilience in Digital Infrastructure Networks.

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3. **R. Pal***, Y. Lemiesa, and M. Siegel: An AI Simulation Theory of Scaling Cyber Insurance Markets with CAT Bonds.

Venue: To Appear in Proceedings of *Winter Simulation Conference* (an INFORMS event), 2026 (IEEE Press), Glasgow, Scotland.

4. C. Robins, Y. Lemiesa, D. Yao, S M A Nahian, **R. Pal***, and M. Siegel: A Network Theory for Optimal Software Supply Chain Risk Management

Venue: To Appear in Proceedings of *Winter Simulation Conference* (an INFORMS event), 2026 (IEEE Press), Seattle, USA.

5. **R. Pal***, K. Duan, C. Zhang, and P. Liu: A Strategic Lens for Threat Intelligence Sharing in Networks.

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Venue: In Proceedings of *ACM SIGSIM PADS*, 2025 New Mexico, USA. [**Quoted in Forbes (I)**]

7. S. Zeijlemaker*, **R. Pal**, and M. Siegel: A System Dynamics Approach to Understand Threat Intelligence Sharing

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4. **R. Pal*** J. Mitra, and M. N. Pal: A Fuzzy-DEA Approach on Quality Function Deployment for Evaluation of Relative Efficiency of Product Designs.
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2. **R. Pal***: Will Rahu Give Spiritual Ethos? An Argumentative Analysis in *Jyotish*.
Press: Motilal Banarsidass International Publishers, 2025. (**Book - Amazon Bestseller**)
3. R. Shukla*, **R. Pal***, and E. Jain*: Rahu and Spirituality: A *Triveni* of Parashari, Nakshatra, and Nadi *Jyotish*.
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4. **R. Pal*** and R. Shukla: How to Demystify the Feared Saturn *Sade Saati* in Vedic Astrology.
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5. **R. Pal*** and R. Shukla: A Simple Approach to Demystify Timing of Events in Vedic Astrology.
Venue: Medium, July 21, 2024. (**Original Research Article**)

RESEARCH STUDENT TESTIMONIALS

1. “Throughout my time as both an undergraduate researcher and MEng with MIT CAMS, Dr. Ranjan Pal has offered invaluable and meticulous insights into my project on cyber-resilience. Because I haven’t had much experience within the business side of things, he provided much crucial input and helped me identify key points and potential considerations when tackling my problem, especially outside of just the technical lens. Additionally, his attentiveness and care for his students was clearly shown as he always diligently answered my questions with thorough and thoughtful responses/feedback. Without his mentorship, I would have been unable to grow as much as I did as both a researcher and student.” **Luisa Pan, EECS, MIT**
2. “Dr. Ranjan Pal has been an exceptional research mentor. He combines technical guidance with the freedom to explore, offering detailed feedback that has sharpened my skills as both a researcher and a communicator. Despite his busy schedule, he consistently remains accessible to his students and offers steady support for both our academic growth and personal well-being.” (**Cynthia Zhang, EECS, MIT**)
3. “Working with Ranjan has been a truly enriching experience. He has consistently provided clear guidance and thoughtful feedback, helping me grow as a researcher. His mentorship style strikes a perfect balance between offering strong support and giving students the freedom to take initiative, which has helped strengthen my confidence and ability to work independently. My time at CAMS with Ranjan has taught me to approach research with a more critical, analytical mindset, preparing me for my future academic and professional goals.” (**Lillian Bluestein, EECS, MIT**)
4. “Dr. Pal has served as a great mentor leading me through understanding how to approach my research with a business and scientific perspective. Working alongside him has given me a valuable understanding of how to communicate my ideas and also has helped support me when I was confused on how to answer a research question. Serving as a guide for my research, we worked on a paper together and I have been able to present my work at MIT CAMS many times, which I attribute the multiple successes of to him.” (**Yaphet Lemiesa, EECS, MIT**)
5. “Dr. Ranjan Pal served as my MEng thesis advisor, where his guidance was critical across all stages of the project. His suggested background material was invaluable in scoping and planning my thesis research, and he consistently provided useful and actionable feedback across both technical results and exposition. Throughout the process, his perspective helped me contextualize the real-world applications of my research and identify the most useful future directions.” (**Darren Yao, EECS, MIT**)
6. “I began working with Dr. Ranjan Pal at the University of Michigan, where his mentorship was instrumental in shaping my understanding of cyber risk management and academic re-

search. He provided clear, structured guidance on formulating research questions, conducting experiments, and engaging with the broader research community. Even after transitioning to MIT CAMS, he remained an accessible and supportive mentor, continuing to collaborate and offer thoughtful insights. His mentorship directly contributed to my successful admission to the PhD program at USC and my ongoing development as a researcher.” **(Rohan Sequeira, ECE, University of Southern California)**

7. *“Ranjan’s research has a compelling blend of mathematical theory and empirics/case studies - often describes as ‘applied theory’, that he applies to a host of very timely and impact business management problems in the field of cybersecurity. Such a research approach immediately caught my attention as a math major at the University of Michigan, where I started collaborating with Ranjan. This collaboration extended to when I went to Harvard and Columbia for my graduate studies. From the start, Ranjan’s mentorship played a pivotal role in my holistic development as a researcher. His thoughtful guidance was instrumental in shaping the direction and success of our work. But more than that, Ranjan became a trusted advisor and a close friend, where conversations extended far beyond research. As a student researcher navigating uncertainty and doubt, I found immense comfort and clarity in our conversations. Ranjan would share his own experiences with honesty and warmth, offering not just encouragement but genuinely practical advice. Looking back, I can say with confidence that Ranjan has been one of the most influential people in my journey. His mentorship continues to shape the way I think, work, and grow — not just as a researcher, but as a person. I’m deeply grateful to call him both a mentor and a lifelong friend.”* **(Peihan Liu, CS, Columbia University)**