Siebel School of Computing and Data Science
University of Illinois Urbana-Champaign
201 N. Goodwin Ave.
Urbana, IL 61801

Office: 1-217-265-5517
Fax: 1-217-265-6494
indy@illinois.edu
http://indy.cs.illinois.edu/
http://dprg.cs.uiuc.edu/

Indranil Gupta

(CV Last updated: Aug 19, 2026)

CURRENT POSITIONS

- Professor (100%), Dept. of Computer Science, University of Illinois at Urbana-Champaign, IL 61801.
- 0% Professor, ECE, UIUC and ITI, UIUC.
- IEEE Fellow (2025), ACM Distinguished Member (2018)
- Host of *Immigrant Computer Scientists Podcast*, http://csimmigrant.org.
  (Available on Apple Podcasts/Spotify/Google Podcasts). Among top 20% of podcasts in the world! (based on listener download numbers)

EDUCATION

Ph.D.	Computer Science Cornell University, Ithaca, NY, USA.	Jan. 2004
Master of Science	Computer Science Cornell University, Ithaca, NY, USA.	2001
Bachelor of Technology	Computer Science and Engineering Indian Institute of Technology (IIT), Chennai, India.	1998

RESEARCH INTERESTS

Large-Scale Distributed Systems; Cloud Computing; IoT; Distributed Machine Learning.

KEY WEBPAGES

- **Homepage**: http://indy.cs.illinois.edu
- **Google Scholar**: https://scholar.google.com/citations?user=Waaj7a8AAAAJ&hl=en
- **DBLP**: https://dblp.org/pid/02/6135.html
- **ORCID**: https://orcid.org/0000-0002-9372-5937

RESEARCH AND WORK EXPERIENCE

- [2017 - Present] University of Illinois at Urbana Champaign: Professor, Dept. of Computer Science. Leader of the Distributed Protocols Research Group (DPRG): http://dprg.cs.uiuc.edu

- [2009 - Aug. 2011, and then Jul. 2012 - 2017] University of Illinois at Urbana Champaign: Assistant Professor, and then Associate Professor, both in Dept. of Computer Science.
- [2019 - 2025] Co-Lead PI (with Karrie Karahalios and Anita Chan), Just Infrastructures Center. http://just-infras.illinois.edu
- [Aug 2018 - Aug 2020] Associate-Head, and Faculty Recruiting Chair, Dept. of Computer Science, University of Illinois at Urbana-Champaign, IL 61801. *(Details: See section on "Departmental, College and Campus Service")*.
- [Aug. 2011 - Jul. 2012] Visiting Research Scientist, Google, Mountain View (Cluster Management). Full-time employee at Google during this time (on unpaid leave from Illinois).
- [2003 - 2009] University of Illinois at Urbana Champaign: Assistant Professor, Dept. of Computer Science.
- [1998 - 2003] Cornell University: Graduate Teaching Assistant and Graduate Research Assistant with Dr. Kenneth P. Birman, Spinglass Project.
- [Jun. - Aug. 2001] Microsoft Research Labs, Cambridge, UK: Intern, Distributed Systems Group.
- [Jun. - Aug. 2000] IBM Research, T.J. Watson Center: Intern, Océano Server Farm Project.
- [1997 - 1998] Indian Institute of Technology (IIT), Chennai (India): Undergraduate Research.

AWARDS

- [2025] IEEE Fellow.
- [2023] Gilles Muller Best Artifact Award, European Conference on Computer Systems (EuroSys) 2023.
- [2018] Best Paper Award, IEEE International Conference on Cloud Engineering (IC2E), 2018.
- [2017] Best Paper Award, 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), 2017.
- [2016] Best Paper Award, IEEE International Conference on Cloud Engineering (IC2E), 2016.
- [2015] Best Paper Award, 12th IEEE International Conference on Autonomic Computing (ICAC), 2015.
- [2015] Nominee for Best Paper Award, 12th International Conference on Quantitative Evaluation of SysTems (QEST), 2015.
- [2012] Best Paper Award, 1st International Workshop on Big Data, Streams and Heterogeneous Source Mining (BigMine), 2012.
- [2010] Faculty Fellowship, Academy for Entrepreneurial Leadership, UIUC (2010). Awarded to only 5 faculty campus-wide.
- [2009-2010] Center for Advanced Studies/Beckman Fellowship, UIUC.
- [2008] Junior Xerox Award for Faculty Research, UIUC (2008). Awarded to only 4 assistant professors across all Departments of Engineering at UIUC.
- [2008] co-PI on the Cloud Computing Testbed at University of Illinois. Funding from Yahoo!, HP, Intel and NSF.
- [2005] National Science Foundation Faculty Early CAREER Development Award.
- [2003-Present] Listed in the UIUC "List of Teachers Ranked as Excellent" multiple times - during Fall 2003, Fall 2004, Fall 2005, Spring 2006, Spring 2007, Fall 2007, Spring 2008, Spring 2011, Fall 2012, Spring 2013, Fall 2016, Fall 2017, Spring 2018, Fall 2018, Fall 2023, Fall 2024. The ratings in Fall 2005,

Spring 2006, Fall 2007, Spring 2008, Spring 2013 were in the *-ed (Outstanding) category. Based on ICES student feedback forms.

- Other awards: [2020] Editorial Excellence and Eminence Award, Given to Select Associate Editors, IEEE Transactions on Cloud Computing.

STUDENT AWARD WINNERS

- [2025] Anna Karanika, Best TA Award, Fall 2024 (for CS425)
- [2025] Maleeha Masood, Best TA Award, Fall 2024 (for CS425)
- [2021] Le Xu, National CIFellows Fellowship (CRA, Computing Community Consortium) for her upcoming postdoc with Prof. Aditya Akella (U. Texas-Austin).
- [2021] Maleeha Masood, Sohaib and Sara Abbasi Fellowship, 2021-22.
- [2020] Cong Xie, J.P. Morgan Chase PhD Fellowship, 2020.
- [2020] Le Xu, Rising Stars in EECS 2020
- [2019] Faria Kalim, Rising Stars in EECS 2019
- [2019] Faria Kalim, Sohaib and Sara Abbasi Fellowship, 2019-20.
- [2019] Faria Kalim, Mavis Future Faculty Fellowship (College of Engineering at UIUC), 2018-19
- [2019] Faria Kalim, Best TA Award, Fall 2018 (for CS425)
- [2018] Shadi Noghabi: David J. Kuck Outstanding PhD Thesis Award, 2018.
- [2017] Shadi Noghabi: Microsoft Research Dissertation Grant, 2017. (Among 12 fellowship winners across the US.)
- [2017] Shadi Noghabi: Mavis Future Faculty Fellowship (College of Engineering at UIUC), 2017-18.
- [2017] Jayasi Mehar: One of the nationwide winners of the Siebel Scholar Award, 2017.
- [2017] Rui Yang: Richard T. Cheng Endowed Fellowship, CS@UIUC, 2017.
- [2016] Rui Yang: Microsoft Women's Fellowship, 2016-17.
- [2016] Le Xu: David J. Kuck Outstanding MS Thesis Award, 2015.
- [2016] Muntasir Rahman: Feng Chen Memorial Award, 2016.
- [2015] Muntasir Rahman: CS Excellence Fellowship, UIUC, 2014-2015.
- [2015] Le Xu: Best TA Award, Fall 2015 (for CS425)
- [2015] Yosub Shin: First place, HackIllinois Competition
- [2014] Muntasir Rahman: VMWare Graduate Fellowship, 2014-2015 (Among 4 fellowship winners worldwide).
- [2014] Tej Chajed: NSF Graduate Fellowship, 2014-2017. (Tej Chajed is now a faculty at CS@University of Wisconsin-Madison!)
- [2014] Mayank Pundir: Siebel Scholar, 2014-2015.
- [2014] Tej Chajed: C. W. Gear Outstanding Undergraduate Award, 2014. (Tej Chajed is now a faculty at CS@University of Wisconsin-Madison!)
- [2007] Brian Cho: Cohen Fellowship for Early CS Ph.D. Students.
- [2009] Imranul Hoque: State Farm Grand Prize in Siebel Center's Computing Habitat Competition.
- [2007] Brian Cho: C. W. Gear Award for Outstanding CS Undergraduate, UIUC.

- [2006] Thadpong Pongthawornkamol: David J. Kuck Best MS Thesis Award, Department of Computer Science, UIUC.

RESEARCH FUNDING AND SUPPORT

([**F**] = Federal Funding. **[I]** = Industry Funding. **[U]** = UIUC Funding.)

- [Aug 2025 - Jul 2029] (Lead PI: Gupta, $1.1M (UIUC Portion: $663K), Co-PIs: Vasisht (UIUC), Raghavan (Brown)) National Science Foundation: CNS 2504595 for UIUC (CNS 2504596 for Brown), Collaborative Research: CSR: Medium: LANDS—Learning-Based Adaptive Networked Systems for Delivery of Short Videos. **[F]**
- [Aug 2026 - Aug 2027] (Lead PI: I. Gupta, $229,344) IIDAI (IBM-UIUC Center's Funded Project) MASC: Building Reliability and Transaction Semantics for LLM Agents. **[I]**
- [Aug 2025 - Aug 2026] (Lead PI: T. Xu, $338,581. co-PIs: I. Gupta, D. Chen, L. Varshney, N. Ahuja) IIDAI (IBM-UIUC Center's Funded Project) Agent-based Autonomous IT Reliability: Agent Design, Benchmarking, and Evaluation. **[I]**
- [Aug 2023 - Aug 2025] (Lead PI: Gupta, $481,000. co-PIs: R. Alagappan, A. Ganesan, K. McHenry) IIDAI (IBM-UIUC Center's Funded Project) HDC: A Full-Stack Solution for the Hybrid Cloud Marrying Data and Compute. **[I]**
- [Dec 2018-Present] (Lead PIs: Gupta, Karahalios, $300,000). Gift from Capital One, Seed Funding for *Just Infrastructures* Center.
  https://just-infras.illinois.edu/ **[I]**
- [Oct 2019 - Sep 2023] (Lead PI: Gupta, $500,000) National Science Foundation: CNS 1908888. GoT – Groups of Things Abstractions for Distributed IoT. **[F]**
- [Aug 2019 - Jul 2022] (Lead PI: Koyejo, $450,000, co-PI: I. Gupta) National Science Foundation: IIS 1909577. Secure, Private, and Resource-Constrained Approaches to Federated Machine Learning. **[F]**
- [Fall 2020-Fall 2022] (co-PI, with Official Lead PI: Karahalios $75,000 $\times 2$). UIUC Strategic Research Initiatives (SRI) Program, Phase 1 (2020-2021) and Phase 2 (2021-2022). Funding for *Just Infrastructures* Center which is co-led by Indranil Gupta Gupta, Karrie Karahalios, and Anita Chan. **[U]**
- [Dec 2018-Present] (Lead PI: Gupta, $25,000). Gift from Schlumberger, Research on Distributed Machine Learning Systems. **[I]**
- [Oct 2015-Present] (Lead PI: Gupta, $300,000, co-PIs: Nahrstedt, Campbell) Gift from Microsoft (Azure team). **[I]**
- [Oct 2014 - Sep 2018] (Lead PI: Gupta, $584,000, co-PIs: Vaidya, Meseguer) National Science Foundation: CNS 1409416, Availability-Consistency Tradeoffs in Key-Value and NoSQL Storage Systems. **[F]**
- [Jul 2013 - Jun 2017] (sole PI, $480,000) National Science Foundation: CNS 1319527, Online Global Reconfigurations in Key-Value and NoSQL Cloud Storage Systems. **[F]**
- [Oct 2014 - Sep 2017] (Senior Personnel, $1.5 Million Lead PI: Nahrstedt) National Science Foundation: 1443013, CIF21 DIBBs: T2-C2: Timely and Trusted Curator and Coordinator Data Building Blocks. **[F]**
- [Oct 2014 - Present] (co-PI, $1 Million, Lead PI: Rutenbar and Kravets) Google Cloud Research + Education Grant. **[I]**
- [Apr 2011- Apr 2017] (co-PI, $6 Million Lead PI: Campbell) AFOSR/AFRL: Assured Cloud Computing Center at Illinois http://assured-cloud-computing.illinois.edu/ **[F]**

- [Jul 2010 - Jun 2015] (Lead PI: Gupta, $600,000, co-PI: Campbell:) National Science Foundation: CCF 0964471, Tackling and Understanding Intermediate Data in Cloud Applications as a First-Class Citizen. **[F]**
- [Oct 2014 - Oct 2015] (sole PI, $10K) Google Cloud Resources Grant. **[I]**
- [Nov 2014 - Nov 2015] (sole PI) Blue Waters Allocation Grant. **[U]**
- [May 2010 - May 2012] (co-PI, $75,000, Lead PI: T. Huang) Beckman New Research Directions Funding. **[U]**
- [Mar 2010 - Feb 2012] (co-PI, $293,892, Lead PI: Abdelzaher) National Science Foundation: CNS 0958314, II-New: Towards Green Data Centers: A Testbed for Thermo-Computational Dynamics. **[F]**
- [Aug 2008 - Jul 2010] (co-PI, $200,000, Lead PI: Heath) National Science Foundation: IIS 0841765, SGER: Acquisition and Operation of an Experimental Testbed for System-Level Research to Support Data-Intensive Computing Applications. (Cloud Computing Testbed). **[F]**
- [Aug 2009 - Aug 2010] (co-PI/Senior Personnel, $100,000, Lead PI: Nahrstedt) National Science Foundation CRI 0855129, Exploring Social Trust in Mobile Educational Environments. **[F]**
- [Mar 2005 - Feb 2010] (sole PI: Gupta, $450,000) National Science Foundation CAREER Grant: CNS 0448246, CAREER: Systematic Design of Distributed Protocols - from Methodologies and Toolkits to Systems. **[F]**
- [Nov 2009 - Nov 2010] (sole PI) Amazon Web Services Research Grant. **[I]**
- [Sep 2004 - Aug 2009] (co-PI, $2.37 Million, Lead PI: F. Pena-Mora) National Science Foundation ITR Grant: CMS 0427089 ITR, ITR: IT-Based Collaboration Framework for Preparing Against, Responding to, and Recovering from Disasters Involving Critical Physical Infrastructures. **[F]**
- [2005-2006] (sole PI) UIUC-INRIA-CNRS Collaboration Grant, Department of Computer Science, University of Illinois at Urbana-Champaign. **[U,F]**
- [Summer 2006] (sole PI, $6K) National Science Foundation grant on Research Experience for Undergraduates (REU). **[F]**
- [2003-2005] (sole PI) NCSA Developmental Grant: CCR040005. NCSA IA64 cluster access. **[U]**

MOOC COURSES TAUGHT

- Cloud Computing Concepts (C3), MOOC on Coursera. World's largest online course on distributed systems. A two-part course series. In 2015: Total of over 150K students. Since 2016, an average of over 80K students reached yearly. Students span 198 countries (according to the UN, there are 198 countries in the world). 70% of students are full-time industry employees.
  URL: https://www.coursera.org/course/cloudcomputing
- Cloud Computing Specialization on Coursera: 2015-2016. Taught both the C3 courses–above–and the Capstone course (Spring 2016). Currently (since Spring 2016): Being offered on a continuous basis on Coursera. URL: https://www.coursera.org/specializations/cloud-computing
- Since Fall 2016 (and every Fall semester), a section of the above courses is blended into the on-campus class CS425 (Distributed Systems) that I teach. This includes MCS-Data Sciences/MCS students at UIUC (program started Fall 2016). URL: https://courses.engr.illinois.edu/cs425/

GRADUATED Ph.D. STUDENTS

1. Anna Karanika, Defended Jun 2026. "Human-centered Control of Smart Spaces." *First Employment: Google.*
2. Beomyeol Jeon, Defended Jun 2024. "Machine Learning Systems in Constrained Environments." *First Employment: Tesla.*
3. Rui Yang, Defended Apr 2022, Received Degree May 2022. "Towards New Notions of Reliability for Smart Homes." *First Employment: Google.*
4. Le Xu, Defended Sep 2021, Received Degree Dec 2022. "Elastic Techniques to Handle Dynamism In Real-time Data Processing Systems." *First Employment: CIFellows Postdoc, with Prof. Aditya Akella, University of Texas-Austin. Next Employment (2024): ByteDance.*
5. Cong Xie (co-advised with Sanmi Koyejo), Defended Mar 2021, Received Degree May 2021. "Toward Communication-Efficient and Secure Distributed Machine Learning." *First Employment: ByteDance, USA.*
6. Faria Kalim, Defended July 2020, Received Degree Aug 2020. "Satisfying Service Level Objectives in Stream Processing Systems." *First Employment: Apple, Cupertino CA, USA.*
7. Shegufta Bakht Ahsan, Defended Apr 2020, Received Degree May 2020. "New Consistency Orchestrators for Emerging Distributed Systems." *First Employment: Amazon, Austin, USA.*
8. Mainak Ghosh, Defended June 2018, Received Degree 2018. "Efficient Data Reconfiguration for Today's Cloud Systems." *First Employment: Twitter, San Francisco, USA.*
9. Shadi Abdollahian Noghabi (co-advised with Roy Campbell), Defended May 2018, Received Degree Dec 2018. "Building Interactive Distributed Processing Applications at a Global Scale". *First Employment: Microsoft Research Labs, Redmond, USA.*
10. Muntasir Rahman, Defended Jun 2016, Received Degree: 2016. "Exploiting Cost-Performance Tradeoffs for Modern Cloud Systems," *First Employment: Microsoft, Redmond, USA (Currently at: Nokia Bell Labs, NJ, USA).*
11. Imranul Hoque, Defended Aug 2013. Received Degree: 2014. "Storage and Processing Systems for Power-Law Graphs." *First Employment: VMWare, Palo Alto, USA (Currently at: Google, Mountain View).*
12. Brian Cho, Defended October, 2012. Received Degree: 2012. "Satisfying Strong Application Requirements in Data-Intensive Cloud Computing Environments." *First Employment: Samsung, South Korea, then at: Research Scientist, Seoul National University. (Currently at: Meta/Facebook).*
13. Steven Y. Ko, Defended on July 17, 2009, Received Degree: 2009. "Efficient On-Demand Operations in Dynamic Distributed Systems." *(Currently at: Associate Professor, School of Computing Science, Simon Frasier Univ. Career Path after PhD: 2009-2010 Postdoctorate at CS/ECE Princeton University, 2010-2017 Asst. Prof. at CSE SUNY-Buffalo, 2017-2020 Assoc. Prof. at SUNY-Buffalo, 2020-Present Assoc. Prof. at Simon Frasier Univ.)*
14. Ramses V. Morales, Defended on June 25, 2009, Received Degree: 2009. "Design of Availability-Dependent Distributed Services in Large-Scale Uncooperative Settings."*First Employment: Postdoctoral Scholar, Xerox Labs, Webster, NY (Currently at: VMWare).*
15. Jay A. Patel, Defended on April 1, 2009, Received Degree: 2009. "Addressing Heterogeneity to Improve Scale and Performance of Distributed Systems." *First Employment: Yahoo!, Champaign (Currently at: Uber).*

CURRENT Ph.D. STUDENTS

1. Anna Karanika: expected to graduate 2025.

2. Xiaojuan Ma: started Fall 2021.
3. Maleeha Masood: started Fall 2021. (co-advised with Deepak Vasisht).
4. Chirag Shetty: started Fall 2022.
5. Sarthak Chakraborty: started Fall 2024.
6. Xinying Zheng: started Fall 2024 (co-advised with Yongjoo Park).
7. Kai-Siang Wang: started Fall 2024.
8. Han-Ting Liang: started Fall 2024.

SERVICE: RESEARCH COMMUNITY

- Associate Editor, ACM Transactions on Autonomous and Adaptive Systems (TAAS), 2012-Present.
- Associate Editor, IEEE Transactions on Cloud Computing (TCC), 2017-2025.
- PC (Co-)Chair for:
  - Usenix HotCloud 2018
  - IEEE IC2E 2017
  - LADIS 2017
  - IEEE ICDCS 2016 (Track Chair, Cloud Computing and Datacenter Systems Track)
  - IEEE ICCAC 2016
  - ACM DeMiST 2016 (co-located with PODC 2016)
  - IEEE P2P 2014
  - ACM/IFIP/Usenix Middleware 2010
  - IEEE SASO 2010
  - ICDCS 2008 Track (Assoc. Track Chair, Wireless and Mobile Computing Track)
  - SSS 2009 (Track Chair, Cloud Computing Track)
  - StoDiS 2005
- Reviewer and Co-author of National Academies of Engineering (NAE) Review Panel Report for NIST. "An Assessment of Four Divisions of the Information Technology Laboratory at the National Institute of Standards and Technology," 2018. `https://www.nap.edu/25283`
- General Chair for ACM PODC 2007.
- Workshops Co-chair for IEEE SASO 2009.
- Treasurer for ACM PODC 2006, and for ACM NOSSDAV 2007.
- Steering Committee Member for IC2E 2021, ACM PODC 2006, for ACM PODC 2007, and ACM/IFIP/Usenix Middleware (2011-2013), IEEE IC2E (2020-Present).
- Awards Chair for ACM PODC 2008.
- Publicity Co-chair for SASO 2008.
- General and Program Chair, StoDiS workshop, December 2005; `http://www.stodis.org`.
- Co-Chair for Special Session in Conference on Evolutionary Computation (CEC), 2007.
- PC Member for:
  - 2027: NSDI 2027
  - 2026: NSDI 2026, Eurosys 2026, ACM ATC 2026.

- 2025: NSDI 2025.
- 2024: ASPLOS 2024, Eurosys 2024, Usenix ATC 2024, ACM Mobicom 2024.
- 2023: Usenix NSDI 2023, ACM SoCC 2023.
- 2022: Usenix OSDI 2022, Eurosys 2022, ACM/IFIP/Usenix Middleware 2022, ACM SoCC 2022.
- 2021: Usenix NSDI 2021, ACM SoCC 2021.
- 2020: ACM/IFIP/Usenix Middleware 2020, ACM SoCC 2020.
- 2018: Eurosys 2018, ACM SoCC 2018, Usenix ATC 2018, IC2E 2018, ICDCS 2018 (Distributed Fault Tolerance and Dependability Track), CCGrid 2018 (Cloud Computing Track), Euro-Par 2018 (Track: Distributed Systems and Algorithms), Committee Member: National Academies of Sciences Panel for Review of NIST's (National Institute of Standards and Technology) ITL (Informational Technology Laboratory), June 2018.
- 2017: ACM SoCC 2017, ACM/IFIP/Usenix Middleware 2017, IEEE ICAC 2017, IEEE ICDCS 2017 (Distributed Operating Systems and Middleware Track), IEEE/ACM CCGrid 2017 (Mobile, Hybrid, and Emerging Clouds Track)
- 2016: Usenix ATC 2016, ACM SoCC 2016, IC2E 2016, ICPP 2016 (Applications Track), ICDCN 2016
- 2015: IEEE IC2E 2015, IEEE ICAC 2015, IEEE CAC 2015, IEEE ICDCS 2015 (Cloud Computing and Datacenter Systems Track), SIGCOMM DCC 2015, P2P/Edge 2015, MTAGS 2015
- 2014: IEEE ICDCS 2014 (Cloud Computing and Datacenter Systems Track), SIGCOMM DCC 2014, ACM SoCC 2014, MTAGS 2014
- 2013: ACM SOCC 2013, IEEE P2P 2013, IC2E 2013, ICDCN 2013
- 2012 (on leave until Aug): MTAGS 2012, ICDIT 2012
- 2011 (on leave from Aug): ICDCS 2011 (OS and Middleware Track), ICAC 2011, DCDV 2011
- 2010: ICDCS 2010 (OS and Middleware Track), HotDep 2010, ICDCN 2010, DCOSS 2010, IEEE SECON 2010, EDCC 2010, MTAGS 2010
- 2009: ACM/IFIP/Usenix Middleware 2009 (Main Track, and Industrial Track), ICDCS 2009 (Distributed Algorithms Track), COMSWARE 2009, ICDCN 2009, SASO 2009, IEEE SECON 2009, MTAGS 2009, Middleware Doctoral Symposium 2009
- 2008: ACM/IFIP/Usenix Middleware 2008, IEEE SASO 2008, ICDCS 2008 (Sensor Networks Track), IPTPS 2008, Usenix HotDep 2008, MiNEMA 2008, IWSOS 2008, Middleware Doctoral Symposium 2008, MTAGS 2008
- 2007: ACM/IFIP/Usenix Middleware 2007, IEEE SASO 2007, SAHNS 2007, IWSOS 2007, ACM NOSSDAV 2007, I2CS 2007
- 2006: ICDCN 2006, IEEE MASS 2006, Usenix HotDep 2006, ACM/IFIP/IEEE Middleware 2006, IWSOS 2006
- 2005: StoDiS 2005

- Mock Thesis Committee Member, Middleware Doctoral Symposium, 2007.
- Committee Member: National Academies of Sciences Panel for Review of NIST's (National Institute of Standards and Technology) ITL (Informational Technology Laboratory), June 2018.
- DOE Panelist: SBIR Panel, February 2011.
- NSF Panelist: March 2005, April 2007, June 2008, October 2009, March 2015.

- Reviewer for several journals (and conferences), including but not limited to: IEEE TPDS, IEEE TNSM, ACM TAAS, IEEE TDSC, Distributed Computing, ACM TOCS, ACM/IEEE TON, JPDC, IEEE TMM, IEEE Network, IEEE Comm. Letters, IEEE TMC, IEEE TSE, JSS, ComNets, AdHocNets, DISC, DSN, IPDPS.

CAMPUS COURSES TAUGHT *(see earlier in the doc for MOOC Courses list)*

- CS 425 - Distributed Systems: Fall semesters (2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2010, 2007, 2006), Spring 2005, Spring 2004 (CS 328).
- CS 525 - Advanced Distributed Systems: Spring semesters (2021, 2018, 2017, 2016, 2015, 2014, 2013, 2011, 2010, 2009, 2008, 2007, 2006 (as CS 598IG)), Fall 2004 (CS 598IG), Fall 2003 (CS 497IG).
- CS 425 (MCS-DS): Fall semesters (2018, 2017, 2016).
- Cloud Capstone (MCS-DS): Spring semesters (2019, 2018), Summer 2018.
- CS 423 - Operating Systems: Fall 2005 (Undergraduate).
- CS 241 - System Programming: Fall 2008.
- CS 591FSN - Mathematical Tools and Foundations in Systems and Networking Research: Spring 2010.
- CS 591SN - New Systems and Networking Seminar: Fall 2005 - Present.
- CS 591IG - Advanced Seminar in Distributed Systems: Spring 2005 - Present.

ACADEMIC SOCIETIES: ACM Distinguished Scientist, IEEE Senior Member, Usenix Member.

PUBLICATION COPIES ONLINE
All publications available on DPRG website: `http://dprg.cs.uiuc.edu`

JOURNAL PUBLICATIONS (all lists in reverse chronological order)

1. A. Karanika, R. Yang, X. Ma, J. Wang, S. Sundaram, I. Gupta, "There is More Control in Egalitarian Edge IoT Meshes," IEEE Transactions on Network and Service Management (TNSM), Special Issue on "Resilient Communication Networks for a Hyper-Connected World", September, 2025.
2. D. Tang, A. Fekete, I. Gupta, A. Parameswaran, "Transactional panorama: a conceptual framework for user perception in analytical visual interfaces (extended version)," Best of VLDB 2023 Journal (Special Issue), vol. 34, no. 40, 2025.
3. X. Ma, I. Gupta, Y. Wang, "Topology and Density Control of Satellite-Defined Photonic Quantum Networks," Physical Review Research, vol. 7, no. 1, page 013314, March 2025.
4. D. Tang, A. Fekete, I. Gupta, A. Parameswaran, "Transactional Panorama: A Conceptual Framework for User Perception in Analytical Visual Interfaces," Proc. of the Very Large Data Bases (VLDB) Endowment, 2023. (also appears as a conference paper, in list below)
5. C. Xie, S. Koyejo, I. Gupta, "ZenoPS: A Distributed Learning System Integrating Communication Efficiency and Security," MDPI Algorithms (Special Issue Gradient Methods for Optimization), vol. 15, no. 7: 233, July 2022. `https://doi.org/10.3390/a15070233` (Paper was also highlighted as a "Title Story" by the journal)
6. Rui Yang, Jiangran Wang, Jiyu Hu, Shichu Zhu, Yifei Li, and Indranil Gupta, "Medley: A Membership Service for IoT Networks", IEEE Transactions on Network and Service Management (TNSM),

September, 2022.

7. L. Su, X. Qin, Z. Zhang, R. Yang, L. Xu, I. Gupta, W. Yu, Z. Kai, J. Zhou, "Banyan: A Scoped Dataflow Engine for Graph Query Service," Proc. of the Very Large Data Bases (VLDB) Endowment, vol. 15, 2022. (also appears as a conference paper, in list below)
8. S. Liu, P. Olveczky, Q. Wang, I. Gupta, J. Meseguer. "Read atomic transactions with prevention of lost updates: ROLA and its formal analysis", Springer Journal on Formal Aspects of Computing, vol. 31, no. 5, pp. 503–540, 2019.
9. S. A. Noghabi, K. Paramasivam, Y. Pan, N. Ramesh, J. Bringhurst, I. Gupta, R. H. Campbell. "Samza: Stateful Scalable Stream Processing at LinkedIn," Proc. of the Very Large Data Bases (VLDB) Endowment, vol. 10, no. 12, pp. 1634-1645, Aug. 2017. **(VLDB 2017 Conference Acceptance Rate: 18.6%)**
10. S. Verma, L. Leslie, Y. Shin, I. Gupta. "An Experimental Comparison of Partitioning Strategies in Distributed Graph Processing", Proc. of the Very Large Data Bases (VLDB) Endowment, vol. 10, no. 5, pp. 493 - 504, Jan. 2017. **(VLDB 2017 Conference Acceptance Rate: 18.6%)**
11. M. R. Rahman, L. Tseng, S. Nguyen, I. Gupta, N. Vaidya. "Characterizing and Adapting the Consistency-Latency Tradeoff in Distributed Key-value Stores", ACM Transactions on Autonomous and Adaptive Systems (TAAS), vol. 11, no. 4, article 20, Feb. 2017.
12. S. Liu, J. Ganhotra, M. R. Rahman, S. Nguyen, I. Gupta, J. Meseguer. "Quantitative Analysis of Consistency in NoSQL Key-value Stores", Leibniz Transactions on Embedded Systems (LITES) (Special Issue on Quantitative Evaluation of Systems (QEST)), vol. 4, no. 1, 2017.
13. R. Subramanyam, L. Leslie, W. Wang I. Gupta. "Idempotent Distributed Counters using a Forgetful Bloom Filter," Cluster Computing (Springer), vol. 19, no. 2, pp. 879-892, June 2016.
14. M. Ghosh, W. Wang, G. Holla, I. Gupta. "Morphus: Supporting Online Reconfigurations in Sharded NoSQL Systems," IEEE Transactions on Emerging Topics in Computing, vol. PP, issue: 99, DOI: 10.1109/TETC.2015.2498102, Nov. 2015.
15. S. Chen, K. Nahrstedt, I. Gupta. "3DTI Amphitheater: Towards 3DTI Broadcasting," ACM Transactions on Multimedia Computing (TOMM), vol. 11, no. 2s, article 47, Feb., 2015.
16. A. Verma, B. Cho, N. Zea, I. Gupta, R. Campbell. "Breaking the MapReduce Stage Barrier," Springer Journal of Cluster Computing, Special issue, pp. 191-206, vol. 6, no. 1, Mar. 2013.
17. I. Hoque, I. Gupta. "Disk Layout Techniques for Online Social Network Data", IEEE Internet Computing Special Issue on Infrastructure for Online Social Networking Systems, vol. 16. no. 3, pp. 24-36, May 2012.
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70. W. Wu, Z. Yang, I. Gupta, K. Nahrstedt, "Towards Multi-Site Collaboration in 3D Tele-Immersive Environments," Proceedings of International Conference on Distributed Computing Systems (ICDCS), 2008. **(Acceptance Rate: 102/638 = 15.9%)**
71. I. Hou, Y. Tsai, T. Abdelzaher, I. Gupta, "AdapCode: Adaptive Network Coding for Code Updates in Wireless Sensor Networks," Proceedings of IEEE INFOCOM, pp. 2189-2197, 2008. **(Acceptance Rate: 236/1152 = 20.48%)**
72. S. Ko, R. V. Morales, I. Gupta, "New Worker-Centric Scheduling Strategies for Data-Intensive Grid Applications," Proceedings of ACM/IFIP/USENIX Middleware, Springer Lecture Notes in Computer Science (LNCS) 4834, pp. 121-142, November 2007. **(Acceptance Rate = 22/107 = 20%)**

73. R. V. Morales, B. Cho, I. Gupta, "AVMEM - Availability-Aware Overlays for Management Operations," Proceedings of ACM/IFIP/USENIX Middleware, Springer Lecture Notes in Computer Science (LNCS) 4834, pp. 266-286, November 2007. **(Acceptance Rate: 22/107 = 20%)**
74. R. V. Morales, I. Gupta, "AVMON: Optimal and Scalable Discovery of Consistent Availability Monitoring Overlays for Distributed Systems," Proceedings of International Conference on Distributed Computing Systems (ICDCS), pp. 55-64, 2007. **(Acceptance Rate: 71/528 = 13.4%)**
75. L. Vu, I. Gupta, J. Liang, K. Nahrstedt, "Measurement and Modeling of a Large-scale Overlay for Multimedia Streaming," Invited Paper Proceedings of International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine), 2007.
76. S. Ko, I. Gupta, Y. Jo, "Novel Mathematics-Inspired Algorithms for Self-Adaptive Peer-to-Peer Computing," Proceedings of IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO), pp. 3-12, 2007. **(Acceptance Rate: 25/120 = 20.8%)**
77. J. A. Patel, H. Luo, I. Gupta, "A Cross-Layer Architecture to Exploit Multi-Channel Diversity with a Single Transceiver," Proceedings of IEEE INFOCOM Minisymposium, pp. 2261-2265, 2007. (Acceptance Rate: 25%)
78. S. Monnet, R. V. Morales, G. Antoniu, I. Gupta, "MOve: Design of an Application-Malleable Overlay," Proceedings of IEEE Symposium on Reliable Distributed Systems (SRDS), pp. 355-364, 2006. (Acceptance Rate: 29%)
79. T. Pongthawornkamol, I. Gupta, "AVCast : New Approaches For Implementing Availability-Dependent Reliability for Multicast Receivers," Proceedings of IEEE Symposium on Reliable Distributed Systems (SRDS), pp. 345-354, 2006. (Acceptance Rate: 29%)
80. R. R. Choudhury, P. Kyasanur, I. Gupta, "Smart Gossip: An Adaptive Gossip-based Broadcasting Service for Sensor Networks," Proceedings of IEEE Symposium on Mobile Ad-Hoc and Sensor Systems (MASS), pp. 91-100, 2006. (Acceptance Rate: 24.48%)
81. V. Bhandari, I. Gupta, "PriorityCast: Efficient and Time-Critical Decision Making in First Responder Ad-Hoc Networks," Proceedings of IEEE Symposium on Mobile Ad-Hoc and Sensor Systems (MASS), pp. 246-255, 2006. (Acceptance Rate: 24.48%)
82. W. J. Jeon, I. Gupta, K. Nahrstedt, "QoS-aware Object Replication in Overlay Networks," Proceedings of IEEE Global Telecommunications Conference (Globecom), 2006. (Acceptance Rate: 40.2%)
83. J. A. Patel, I. Gupta, N. Contractor, "JetStream: Achieving Predictable Gossip Dissemination by Leveraging Social Network Principles," Proceedings of IEEE International Symposium on Network Computing and Applications (NCA), pp. 32-39, 2006. (Acceptance Rate: 35%)
84. M. Treaster, W. Conner, I. Gupta, K. Nahrstedt, "ContagAlert: Using Contagion Theory for Adaptive, Distributed Alert Propagation," Proceedings of IEEE International Symposium on Network Computing and Applications (NCA), pp. 126-136, 2006. (Acceptance Rate: 35%)
85. W. Conner, K. Nahrstedt, I. Gupta, "Preventing DoS attacks in peer-to-peer media streaming systems," Proceedings of Annual Multimedia Computing and Networking (MMCN), 2006. **(Acceptance Rate: 19.5%)**
86. S. Ko, I. Gupta, "Perturbation-Resistant and Overlay-Independent Resource Discovery," Proceedings of IEEE International Conference Dependable Systems and Networks (DSN), Yokohama, pp. 248-257, Japan, 2005. **(Acceptance Rate 20%)**
87. M. J. Miller, C. Sengul, I. Gupta, "Exploring the Energy-Latency Trade-off for Broadcasts in Energy-Saving Sensor Networks," Proceedings of IEEE International Conference on Distributed Computing Systems (ICDCS), pp. 17-26, 2005. **(Acceptance Rate: 14%, Track Acceptance Rate: 10%)**

88. D. Kostoulas, D. Psaltoulis, I. Gupta, K. Birman, A. J. Demers, "Decentralized Schemes for Size estimation in Large and Dynamic Groups," Proceedings of IEEE International Symposium Network Computing and Applications (NCA), Cambridge (MA), pp. 41-48, 2005. (Acceptance Rate: 23.9%)
89. C. F. Devaraj, M. Nagda, I. Gupta, "An Underlay for Sensor Networks: Localized Protocols for Maintenance and Usage," Proceedings of IEEE Conference Mobile Ad-Hoc and Sensor Systems (MASS), pp. 8-15, 2005. (Acceptance Rate: 35%)
90. J. Newell, I. Gupta, "The P2P MultiRouter: a Black Box Approach to Run-time Adaptivity for P2P DHTs," Proceedings of IEEE Conference on Collaborative Computing (CollaborateCom), 2005. (Acceptance Rate: 43%)
91. R. Zheng, G. He, I. Gupta, L. Sha, "Time Indexing in Sensor Networks," Proceedings of IEEE Mobile and Sensor Systems (MASS), pp. 274-283, October 2004. (Acceptance Rate: 52/200 = 25.5%)
92. I. Gupta, "On the Design of Distributed Protocols from Differential Equations," Proceedings of ACM Symposium on Principles on Distributed Computing (PODC), pp. 216-225, 2004. **(Acceptance Rate = 17.4%)**
93. A. S. Das, I. Gupta, A. Motivala, "SWIM: Scalable Weakly-consistent Infection-style process group Membership protocol," Proceedings of IEEE International Conference on Dependable Systems and Networks (DSN), pp. 303-312, June, 2002. (Acceptance Rate: 31%)
94. I. Gupta, A.-M. Kermarrec, A. J. Ganesh, "Efficient Epidemic-style Protocols for Reliable and Scalable Multicast," Proceedings of IEEE Symposium Reliable Distributed Systems (SRDS), pp. 180-189, October, 2002. (Acceptance Rate: 30%)
95. I. Gupta, K. Birman, P. Linga, A. J. Demers, R. van Renesse, "Kelips: building an Efficient and Stable P2P DHT through increased Memory and Background overhead," Proceedings of International Workshop on Peer-to-Peer Systems (IPTPS), Springer, Lecture Notes in Computer Science (LNCS) 2735, pp. 160-169, February, 2003. **(Acceptance Rate: 16.36%)**
96. I. Gupta, R. van Renesse, K. P. Birman, "Scalable Fault-tolerant Aggregation in Large Process Groups," Proceedings of IEEE International Conference on Dependable Systems and Networks (FTCS/DSN), pp. 433-442, July, 2001. (Acceptance Rate: 35.09%)
97. I. Gupta, T. D. Chandra, G. S. Goldszmidt, "On Scalable and Efficient Distributed Failure Detectors," Proceedings of ACM Symposium on Principles of Distributed Computing (PODC), pp. 170-179, August, 2001. (Acceptance Rate: 28.7%)
98. S. A. Fakhouri, G. S. Goldszmidt, I. Gupta, Michael Kalantar, John A. Pershing, "Gulf-stream - a system for Dynamic Topology Management in Multi-domain Server Darms," Proceedings of IEEE International Conference on Cluster Computing (Cluster), October 2001. (Acceptance Rate: 47.2%)
99. I. Gupta, R. van Renesse, K. P. Birman, "A Probabilistically correct Leader Election Protocol for Large Groups." Proceedings of International Symposium on Distributed Computing (DISC), Springer, Lecture Notes in Computer Science (LNCS) 1914, pp. 89-103, October, 2000. (Acceptance Rate: 23%)

PATENTS and INDUSTRIAL CONFERENCE PUBLICATIONS

1. John Wilkes, Indranil Gupta, Walfredo Cirne, Brian Grant, Todd Wang, "Omega Names: Name Generation and Derivation Using Nested Three or More Attributes," US Patent 10324909, Patent Granted June 18, 2019 (Filed in 2013 and 2016).
   Available at: http://patentsgazette.uspto.gov/week25//OG/html/1463-3/US10324909-20190618.html.

2. S. Ko, P. Yalagandula, I. Gupta, V. Talwar, D. Milojicic, S. Iyer, J. Purushottaman, "Data center Level Metrics Via In-network Aggregation," Proceedings of HP Annual Technical Conference (TechCon), 2007. **(Acceptance Rate: 40/1000 = 4%)**

WORKSHOP PUBLICATIONS

1. I. Gupta, "Hammer or Gavel? Or: How I Learned to Stop Learning and Love the (Old-Fashioned) Algorithm," Proc. First Workshop on Principles of Distributed Learning (PODL) - Invited Talk, Salerno, Italy, 2022.
2. S. B. Ahsan, R. Yang, S. A. Noghabi, I. Gupta, "Home, SafeHome: Ensuring a Safe and Reliable Home Using the Edge," Proc. 2nd Usenix Workshop on Hot Topics in Edge Computing (HotEdge), 2019. (Acceptance Rate: 22/39 = 56.41%)
3. S. B. Ahsan, I. Gupta. "The CAT Theorem and Performance of Transactional Distributed Systems," Proc. ACM PODC Workshop on Distributed Cloud Computing (DCC) (co-located with ACM PODC), 2016. (Acceptance Rate: 11/27 = 40%)
4. G. Du, I. Gupta. "New Techniques to Curtail the Tail Latency in Stream Processing Systems," Proc. ACM PODC Workshop on Distributed Cloud Computing (DCC) (co-located with ACM PODC), 2016. (Acceptance Rate: 11/27 = 40%)
5. M. R. Rahman, S. Piduri, I. Languev, R. Griffith, I. Gupta. "Software-defined Consistency Group Abstractions for Virtual Machines," Proc. ACM PODC Workshop on Distributed Cloud Computing (DCC) (co-located with ACM PODC), 2016. (Acceptance Rate: 11/27 = 40%)
6. W. Wang, L. Xu, I. Gupta. "Scale up Vs. Scale out in Cloud Storage and Graph Processing Systems," Proc. IEEE Workshop on Cloud Analytics (IWCA) (co-located with IEEE International Conference on Cloud Engineering (IC2E)), 2015.
7. F. Shaikh, F. Yao, I. Gupta, R. Campbell. "VMDedup: Memory De-duplication in Hypervisor," Proc. IEEE International Workshop on Cloud Analytics (IWCA), 2014.
8. L. Cao, , H. D. Kim, M.-H. Tsai, B. Cho, Z. Li, I. Gupta, C. Zhai, T. S. Huang. "Delta-SimRank Computing on MapReduce," Proc. 1st International Workshop on Big Data, Streams and Heterogeneous Source Mining (BigMine), 2012. (Acceptance Rate: 60%) **(Awarded Best Paper at BigMine 2012)**.
9. R. Campbell, I. Gupta, M. Heath, et. al., "Open Cirrus: Cloud Computing Testbed: Federated Data Centers for Open Source Systems and Services Research," Proceedings of First Usenix Workshop on Hot Topics in Cloud Computing (HotCloud I), 2009. (Acceptance Rate: 13/40 = 32.5%)
10. S. Ko, I. Hoque, B. Cho, I. Gupta. "On Availability of Intermediate Data in Cloud Computations," Proceedings of 12th Usenix Workshop on Hot Topics in Operating Systems (HotOS XII), 2009.
11. V. Raman, I. Gupta. "Performance Tradeoffs Among Percolation-based Broadcast Protocols in Wireless Sensor Networks", Proceedings of WWASN, 2009.
12. S. Ko, I. Gupta, "Efficient On-Demand Operations in Dynamic Distributed Infrastructures," Proceedings of Workshop on Large-Scale Distributed Systems and Middleware (LADIS), 2008.
13. E. Ucan, N. Thompson, I. Gupta, "A Piggybacking Approach to Reduce Overhead in Sensor Network Gossiping," Proceedings of International Workshop on Middleware for Sensor Networks (MidSens), 2007.
14. M. J. Miller, I. Gupta, "Practical Exploitation of the Energy-Latency Tradeoff for Sensor Network Broadcast," Proceedings of IEEE Workshop on Sensor Networks and Systems for Pervasive Computing (PerSeNS), pp. 318-322, 2007. (Acceptance Rate: 28.9%)

15. A. Harris, R. Kravets, I. Gupta, "Building Trees Based On Aggregation Efficiency in Sensor Networks," Proceedings of IFIP/IEEE Annual Mediterranean Ad Hoc Networking Workshop (Med Hoc Net), June, 2006.
16. J. Liang, S. Ko, I. Gupta, K. Nahrstedt, "MON: On-demand Overlays for Distributed System Management," Proceedings of Usenix Workshop on Real Large Distributed Systems (WORLDS), 2005 (Acceptance Rate: 40%).
17. R. V. Morales, I. Gupta, "Providing Both Scale and Security through a Single Core Probabilistic Protocol," Proceedings of Workshop on Stochasticity in Distributed Systems (StoDiS), 2005. (Acceptance Rate: 34%)
18. A. S. Cheema, M. Moosa, I. Gupta, "Peer-to-peer Discovery of Computational Resources for Grid Applications," Proceedings of IEEE/ACM Workshop on Grid Computing (GRID), pp. 179-185, 2005. **(Acceptance Rate: 18.8%)**
19. C. Abad, I. Gupta, "Adding Confidentiality to Application-Level Multicast by Leveraging the Muticast Overlay," Proceedings of Fourth IEEE International Workshop on Assurance Distributed Systems and Networks (ADSN), pp. 5-11, 2005.
20. J. A. Patel, and I. Gupta, "Overhaul: an HTTP extension to combat Flash Crowds," In Proceedings of Ninth Workshop on Web Caching (WCW), Springer, Lecture Notes in Computer Science (LNCS) 3293, pp. 34-43, October 2004. (Acceptance Rate: 21/50 = 42%)
21. P. Linga, I. Gupta, Ken Birman, "A Churn-resistant Peer-to-peer Web-Caching System," Proceedings of ACM Workshop on Survivable and Self-Regenerative Systems (SSRS 03), pp. 1-10, October 2003. (Acceptance Rate: 38.4%)
22. I. Gupta, "Minimal CDMA Recoding Strategies for Power-controlled Ad-hoc Wireless Networks," Proceedings of IEEE International Workshop on Parallel and Distributed Computing issues in Wireless Networks and Mobile Computing, pp. 187, April 2001.
23. I. Gupta, Ken Birman, "Holistic Operations in Large-scale Sensor Network Systems: a Probabilistic Peer-to-peer Approach," Proceedings of International Workshop on Future Directions in Distributed Computing (FuDiCo), Bertinoro, Springer, Lecture Notes in Computer Science (LNCS) 2584, pp. 180-185, June 2002. (Acceptance Rate: 64%).

INVITED LECTURES

Keynotes and Panels

1. Keynote Speaker at Workshop on Machine Intelligence in Networked Data and Systems (MINDS) (colocated with COMSNETS 2023). "Hammer or Gavel? Or: How I Learned to Stop Learning and Love the (Old-Fashioned) Algorithm." January 2023, Bangalore, India.
2. Keynote Speaker at IEEE ICAC+SASO 2019 (16th IEEE International Conference on Autonomic Computing + 13th IEEE International Conference on Self-Adaptive and Self-Organizing Systems). "The Future of Technology will not be Technological...," June 12, 2019, Umeå, Sweden.
3. Panelist at 26th International Conference on Computer Communications and Networks (ICCCN 2017). Talk title: "Intent-based Distributed Systems." Panel topic: "Cloud Scale Big Data Analytics." Aug. 1, 2017, Vancouver, Canada.
4. Keynote Speaker at CloudAsia 2017 (5th International Conference on Cloud Computing Research and Innovation, ICCCRI 2017). "Building Predictability into Cloud Distributed Systems," Apr. 12, 2017, Singapore.

5. Keynote Speaker at Fourth International Workshop on Middleware for Sensor Networks (MidSens). "Natural Wireless Sensor Networks," Dec. 1, 2009, Champaign-Urbana, IL, USA.
6. Panelist at 2nd IEEE International Workshop on Cloud Analytics (IWCA). Panel Topic: "Where're Clouds Headed in 5 years?" Mar. 12, 2015, Tempe, AZ, USA.
7. Panelist at 6th Middleware Doctoral Symposium (MDS). Panel Topic: "What's in the Cloud?" Nov. 30, 2009, Champaign-Urbana, IL, USA.
8. Panelist at Web Caching Workshop (WCW). Panel Topic: "Caching the Uncachable - An Uphill Battle Against Dynamic and Personalized Content." Sep, 30, 2003, IBM T. J. Watson Research Center, Yorktown Heights, NY, USA.

Other Presentations Outside UIUC (excluding regular conference paper presentations)

1. "Autoscaling, Sloppily," Invited talk at the Department of Computer Science and Engineering, Univ. of California San Diego, Nov 24, 2025.
2. "Cloud Outages, Fast and Slow", Invited Talk at IETF Decentralization of the Internet Research Group (DINRG), at IETF-124 Conference, Montreal, Nov 4, 2025.
3. EECS Colloquium, Pennsylvania State University, "Home, SafeHome: Manage the Smart Home, Not the Devices!", Jan 23, 2023.
4. Max Planck Institute for Software Systems/Informatics (MPI-SWS and MPI-INF), Saarbrücken Germany. "Hammer or Gavel? Or: How I Learned to Stop Learning and Love the (Old-Fashioned) Algorithm", July 2022.
5. University of California, Berkeley (RISELab, EECS). "Home, SafeHome: Manage the Smart Home, Not the Devices!", Sep 29, 2021.
6. Max Planck Institute for Software Systems (MPI-SWS). Online talk. "The Future of Technology will not be Technological...," Summer 2020.
7. IIT-Mumbai. "The Future of Technology will not be Technological...," Summer 2020.
8. "Who Will Write Those Industry Production Papers?", Cloud Control Workshop, Sandhamn, Sweden, June 2019.
9. University of British Columbia. "Building Predictability into Cloud Distributed Systems," Spring 2017.
10. University of California-Berkeley. "Efficient And Online Reconfigurations In Sharded Databases," Spring 2016.
11. Microsoft. "Efficient And Online Reconfigurations In Sharded Databases," Spring 2016.
12. Carnegie-Mellon University. "Speedy and Efficient Distributed Graph Processing," Fall 2015.
13. University of Wisconsin-Madison. "Efficient And Online Reconfigurations In NoSQL Databases," Fall 2015.
14. University of Chicago. "Speedy and Efficient Distributed Graph Processing," Fall 2015.
15. I. Gupta, (co-authored with M. Ghosh, Y. Shin, W. Wang, G. Holla) "Efficient And Online Reconfigurations In NoSQL Databases," Proc. INFORMS Annual Meeting, Nov. 2015.
16. "Probabilistic CAP and Adaptive Key-value Stores," Invited Talk: Greater Chicago Area Systems Research Workshop (GCASR 2015), 2015.
17. "Probabilistic CAP and Timely-Adaptive Key-value Stores", JLESC Workshop, Chicago, 2014.
18. Yahoo! Inc, Sunnyvale. "Speedy Graph Processing," 2014.
19. VMWare. "Natjam: Priorities and Deadlines in Hadoop," 2013.
20. "Natjam: Design and Evaluation of Eviction Policies For Supporting Priorities and Deadlines in

Mapreduce Clusters", Presented at ACM Symposium on Cloud Computing (SoCC), 2013.
21. HortonWorks. "Cloud Mice: Intermediate Data in Clouds," 2012.
22. Google (Mountain View). "Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," Jan 28, 2011.
23. Microsoft Research (Redmond). "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," July 31, 2008.
24. University of Washington, Department of Computer Science. "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," June 2, 2008.
25. University of Chicago, Computation Institute. "Lightweight Monitoring Techniques for Large-Scale Distributed Systems," May 22, 2008.
26. Princeton University, Department of Computer Science. "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," May 6, 2008.
27. Georgia Institute of Technology, College of Computing (CERCS). "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," February 6, 2008.
28. University of Michigan at Ann-Arbor, Department of Computer Science and Engineering. "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," January 28, 2008.
29. University of Texas at Austin, Department of Computer Science. "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," November 9, 2007.
30. Purdue University, Department of Computer Science. "Wizards and Fruitflies - Using Ephemeral and Eternal Overlays for Monitoring Distributed Systems," October 22, 2007.
31. University of Toronto, Department of Computer Science. "Local Actions for Global Predicates in Distributed Systems," November 17, 2006.
32. Microsoft Research, Silicon Valley Center. "Systematic Design of Distributed Protocols - From methodologies to Systems," December 11, 2005.

Inside UIUC

1. Grainger College of Engineering, "How to write research and teaching statements," Mavis Faculty Fellows program (Senior PhD students), Yearly since 2017.
2. Computational Science and Engineering Seminar Series, "The NoSQL Revolution will Be Powered by Impossibilities", Fall 2015.
3. Various panels as chair of the Systems and Networking Area, 2014-Present.
4. Department of Computer Science, "How to Write a Conference Paper," 2013.
5. Department of Computer Science, Panel on "Industry Internships" Spring 2010.
6. Department of Computer Science, CS598LRS Course for Ph.D. students "Improving Your Research Skills" (organized by Lui Sha). Gave Special Lecture on "How do I start building a research career?" Spring 2007.
7. Department of Computer Science Colloquium, UIUC, "Is there a Tipping Point for Distributed Systems?" Academic year 2006/07.
8. Symposium on Understanding Complex Systems, UIUC, "Fighting Fire with Fire: using Probabilistic techniques to build Stress-resistant Networked Computer systems," May 17-20, 2004.
9. Department of Computer Science Colloquium, UIUC, "Fighting Fire with Fire: using Probabilistic techniques to build Stress-resistant Networked Computer systems," Academic year 2003/04.

DEPARTMENTAL, COLLEGE AND CAMPUS SERVICE

- [2025 - 2026] Chair, Executive Committee in the Siebel School of Computing and Data Science (the Executive Committee is the only committee that advises the School's Director/Head)
- [2025 - 2027] Member (Senator), UIUC Senate. (Elected by SSCDS faculty)
- [2024 - 2026] Grad Admissions Committee, Special Advocate for Comprehensive Application Review (this worked helped review 100% of PhD applicants into UIUC SSCDS, for the first time in many decades).
- [2023 - 2026] Member, Executive Committee in the Siebel School of Computing and Data Science (the Executive Committee is the only committee that advises the School's Director/Head)
- [2020-21] Code of Conduct Committee, Grainger College of Engineering, UIUC.
- [2020-21] Faculty Professional Development and Mentoring Ad Hoc Committee
- [2018-20] Associate Head, Dept. of Computer Science, UIUC.
- [2018-20] Chair, Faculty Recruiting Committee, Dept. of Computer Science, UIUC: 84 total interviews, and 15 new tenure-track-tenured faculty hired in the 2 year period. This is a 20%+ growth in the department size, likely the largest absolute growth in any 2 year period for CS@Illinois. YoY Split: 34 interviews and 4 new faculty in 2018-19, and 50 interviews and 11 new faculty in 2019-20 (and still counting).
- [2020] Member of Anti-Racism Task Force (ARTF), Grainger College of Engineering (Chair: Tandy Warnow).
  Report: https://ws.engr.illinois.edu/sitemanager/getfile.asp?id=1594
- [2019] CS Strategic Planning Committee, Dept. of Computer Science, UIUC.
- [2018-20] GEBI Search Committee, Dept. of Computer Science, UIUC.
- [2018] Committee Member: National Academies of Sciences Panel for Review of NIST's (National Institute of Standards and Technology) ITL (Informational Technology Laboratory), June 2018.
- [2015-16] Chair, Engineering-IT Governance and Executive Advisory Committee (Instituted by Dean Andreas Cangellaris), College of Engineering. This committee oversees all operations of, and provides suggestions on, all operations and organization of the Engineering-IT organization.
- [2016-Present]: At-large member, Engineering IT Governance Committee.
- [2017-18]: Student Awards Committee, CS Department.
- [2016-17]: Faculty Recruiting Committee, CS Department.
- [Spring 2014, Spring 2015] Chair, Education IT Committee (Instituted by Dean Andreas Cangellaris), College of Engineering. This committee's final report in Spring 2014 was used by Engineering-IT to create new projects aimed at vastly improving the IT capabilities in the College of Engineering.
- [2015] Member, IT Strategy Alignment Group (Instituted by Dean Andreas Cangellaris), College of Engineering.
- [2014-2016] Chair, Systems and Networking Area, Dept. of Computer Science.
- [2015-16] Graduate Admissions (FAA) Committee.
- [2014-2015] Member, IT Governance Committee (Instituted by Dean Andreas Cangellaris), College of Engineering.
- [2014] Member, IT Governance Public Engagement (Campus Level).

- [2012-2014] Faculty Senate Member, University of Illinois.
- [2013-2014] Faculty Recruiting Committee, Department of Computer Science.
- [2013-2014] Faculty Recruiting Committee, Department of Electrical and Computer Engineering.
- [2013] ITI Research Program Manager Recruiting Committee.
- [2012-2015] Campus Google Fellowship Review Committee.
- [2012-2013] Graduate Admissions (FAA) Committee.
- [2009-2011] Chair, Student Awards Committee, Department of Computer Science, UIUC.
- [2009-2011, 2012-2014] Computer Science Advisory Committee, UIUC.
- [2009-2011] College of Engineering Awards Committee, UIUC.
- [2004-2011] Student Awards Committee, Department of Computer Science, UIUC.
- [2006-2011] Grad Study Committee, Department of Computer Science, UIUC.
- [2004-Present] Department of Computer Science: Undergraduate Student Advisor.
- [2004-Present] Department of Computer Science: Graduate Student Advisor.
- [2003-Present] Department of Computer Science: Qualifying Exam Committees in "Systems and Networking" area.
- [Spring 2008] Two-Member Committee for 2007-08 Annual Evaluation of Systems and Networking Graduate Students.
- [2006] Systems and Networking Distinguished Graduate Students Committee.
- [Fall 2007] Co-Organizer (with Klara Nahrstedt), TGIF lunch.
- [2003-Present] Prelim and Defense Committees for several Ph.D. students.

SUPERVISION OF MASTER OF SCIENCE and UNDERGRAD STUDENTS

1. Rishabh Menezes, "Efficient Static Checking of Safety Properties in Concurrent Smart Environments," MS Thesis, 2025.
2. Evan Varghese, "INNER: Interface-Aware Neighborhood Routing in Large-Scale Low-Earth-Orbit Satellite Networks," MS Thesis, 2025.
3. Thrivikraman Varadharajan, "Stateless Node Rebalancing and Stateful Building Blocks for Limitless Autoscaling," MS Thesis, 2025.
4. Jadon Schuler, "Making Safety Guarantees in Smart Environments," MS Thesis, 2024
5. Jiangran Wang, "Churn-Tolerant Leader Election on Weakly-Consistent Membership", MS Thesis, 2023.
6. Pallavi Srivastava, "Exploring Model Parallelism in Distributed Scheduling of Neural Network Frameworks," MS Thesis, 2018.
7. Harshit Agarwal, "GNuggies: A Proposal for Hosting Resilient Stateless Services using Untrusted Nodes," MS Thesis, 2018.
8. Ashwini Raina, "Optimizing Interactive Analytics Engines for Heterogenous Clusters," MS Thesis, 2018.
9. Mayank Bhatt, "Topology-Aware Distributed Graph Processing for Tightly-Coupled Clusters," MS Thesis, 2018.
10. Jayasi Mehar, "Melange: Multi-tenant Scheduling with Adaptive Eviction for Graph Processing Clusters," MS Thesis, 2018.

11. Akshun Gupta, "Exploration of Fault-Tolerance in Apache Spark," MS Thesis, 2017.
12. Shiv Verma, "An experimental comparison of partitioning strategies in distributed graph processing," MS Thesis, 2017. Next: Microsoft.
13. Luke Leslie, "Approximate failure recovery in distributed graph processing systems", MS Thesis, 2016. Next: Google.
14. Guangxiang Du, "New techniques to lower the tail latency in stream processing systems", MS Thesis, 2016. Next: Google.
15. Le Xu, 2015, "Stela: On-demand Elasticity in Distributed Data Stream Processing Systems." Next: PhD student at UIUC. **Kuck Best MS Thesis Award Winner 2015.**
16. Boyang Jerry Peng, 2015, "Elasticity and Resource Aware Scheduling in Distributed Data Stream Processing Systems." Next: Yahoo!.
17. Rajath Subramanyam, 2015, "Idempotent distributed counters using a Forgetful Bloom Filter." Next: Datos IO.
18. Mayank Pundir, 2015, "Zorro: Zero-Cost Reactive Failure Recovery in Distributed Graph Processing." Next: Facebook.
19. Son Nguyen, 2015, "Adaptive control for availability and consistency in distributed key-values stores." Next: Jump Trading.
20. Ala' Alkhaldi, 2014, "Leveraging Metadata in NoSQL Storage Systems." Next Employment: DataStax.
21. Hilfi Alkaff, 2014, "Cross-layer scheduling in cloud computing systems." Next: Startup.
22. Simon Krueger, 2011, "Engineering and evaluating bulk data transfer planning over wide area networks." (Next: Microsoft.)
23. Ercan Ucan, 2007, "Scheduling of multi-stream gossip systems." First Employment: NVIDIA.
24. Charles Yang, 2006, "Deployable Techniques to Enable Cooperative Distribution of Web Content." Next: Yahoo!, then Twitter. Currently: Google
25. Thadpong Pongthawornkamol, 2006, "AVCast : New Approaches For Implementing Availability-Dependent Reliability for Multicast Receivers." First Position Afterwards: A Ph.D. student in UIUC CS department. Next: Google. **Kuck Best MS Thesis Award Winner 2006.**
26. Ramses V. Morales, 2005, "Untraceability and Malleability in P2P Overlays." First Position Afterwards: A Ph.D. student with Indranil Gupta.
27. (5 year BS/MS Thesis) Muhammad Moosa, 2005, "Efficient Mutual Exclusion in Peer-to-peer Systems." First Employment: Motorola.
28. Dimitrios Psaltoulis, 2005, "Active Algorithms for Group Size Estimation in Peer-to-peer Systems and Wireless Sensor Networks." First Employment: McKinsey and Co.
29. Yookyung Jo, 2005, "Designing Practical Distributed Systems from Sequence Equation Models." First Position Afterwards: Ph.D. student at Cornell (Computer Science Department).
30. (5 year BS/MS Thesis) Adeep Singh Cheema, 2005, "Structured Naming and Peer-to-Peer Discovery of Resources in Grid Applications." First Employment: Microsoft.
31. Kanwar Singh, 2004, "A Study of Membership Maintenance Protocols for Groups in Sensor Networks."
32. (co-supervised with Feniosky Pena-Mora of CEE Department at UIUC) Dionysios Kostoulas, 2005, "Distributed Reputation-Based Mechanisms for Trust Propagation in Large Groups." First Employment: Intrasoft International.
33. (co-supervised with Gul Agha) Mahvesh Nagda, 2004, "DiffGen: A Toolkit for generating Dis-

tributed Protocols from Differential Equations." First Employment: Sandia National Labs.

SOFTWARE

Links to all software available at: http://dprg.cs.uiuc.edu/downloads.php

- System Demos available on Youtube channel: http://bit.do/dprgdemos
  (actual channel URL: https://www.youtube.com/channel/UC4c11eEVRVjbXE2brjuAetg)
- (Available for direct download or use) Morphus, LFGraph, Hadoop without Barriers, Wasef, ISS (Intermediate Storage System) for Hadoop, MON Monitoring Service for PlanetLab, PPfeaturing an interviewLive Measurement Traces, PPLive crawler code, peerCounter Monitoring Software.
- (Available via email only, to track users) DiffGen, Folklore Distributed File System, Overhaul Apache Web Server and Client, AVMON Monitoring Software, Moara Monitoring Software, and others.
- Educational (Available for direct download): DSI (Distributed Systems Infrastructure), CS425 Machine Programming Assignments for 3-Stage Building of a P2P System.

NEWS ARTICLES ABOUT MY WORK

- [Oct 25 2025] CNN's article on the AWS outage of Oct 19-20 2025 featured quotes and intuitive explanations from me. "How a tiny bug spiraled into a massive outage that took down the internet." https://www.cnn.com/2025/10/25/tech/aws-outage-cause
- [2024] "CS professor Indranil Gupta elevated to IEEE Fellow". CS@Illinois Article. 2024. https://siebelschool.illinois.edu/news/gupta-2025-IEEE-Fellow
- "AMD Cloud Chronicles" Podcast Interview of Indranil Gupta on the topic of Cloud Computing. https://www.youtube.com/watch?v=nHxvE183_eg
- [2021] "Immigrant Computer Scientist' Podcast Shares Human Stories of Immigrants Who Have Shaped the Computing Landscape," CS@Illinois Article about my *Immigrant Computer Scientists* Podcast. https://tinyurl.com/34s6wap7
- [2021] "Immigration and Computer Science," Blog Post by Sharif Islam covering the *Immigrant Computer Scientists Podcast*.
  https://sadnewsletter.substack.com/p/immigration-and-computer-science
- [2021] Podcast Interview by "Software at Scale" Series.
  https://www.softwareatscale.dev/p/distributed-systems-with-indranil
- [2018] Quartz lists MOOCs on "Cloud Computing Concepts" in its list of courses to take.
  https://qz.com/1351501/tk-free-online-courses-with-credits-that-count-towards-your-degree/
- [2018] The Morning Paper's coverage of our two papers in Eurosys:
  - Service Fabric:
    https://blog.acolyer.org/2018/06/05/
    servicefabric-a-distributed-platform-for-building-microservices-in-the-cloud/
  - Getafix:
    https://blog.acolyer.org/2018/06/15/
    popular-is-cheaper-curtailing-memory-costs-in-interactive-analytics-engines/
- [2018] CS@Illinois article on our work involving Microsoft's Service Fabric, Apr 20, 2018.
  URL: https://cs.illinois.edu/news/microsoft-opens-hood-popular-service-fabric-platform-cs-

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  URL: https://www.edsurge.com/news/2016-08-17-google-offers-free-cloud-access-to-colleges-plays-catch-up-to-amazon-microsoft
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  URL: http://www.cs.uiuc.edu/sites/default/files/newsletters/Click_2016_Vol-1.pdf
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  URL: http://blog.acolyer.org/2015/04/15/cross-layer-scheduling-in-cloud-systems/
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    URL: http://www.nsf.gov/news/news_summ.jsp?cntn_id=111984&org=NSF&from=news
  - Washington Post: "HP, Yahoo, Intel Launch Cloud Computing Test Bed."
    URL: http://www.washingtonpost.com/
    wp-dyn/content/article/2008/07/29/AR2008072901263.html
  - Reuters: "HP, Intel and Yahoo study ways to make Web a utility."
    URL: http://uk.reuters.com/article/idUKN2932942320080729
  - BBC: "HP, Intel, Yahoo in cloud tie-up."
    URL: http://news.bbc.co.uk/2/hi/technology/7531352.stm
  - New York Times: "Yahoo, Intel and HP Form Cloud Computing Labs."
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ism. URL: http://jscms.jrn.columbia.edu/cns/2005-03-15/keim-lifesavingbugs/

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  URL: http://www.medicalnewstoday.com/articles/20541.php
- Articles by UIUC CS Department:
  - [Apr 10, 2015] "CS@Illinois MOOC Enrolments Soar as New Specializations Launch."
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  - [Feb 22, 2010] "Entrepreneurial-focused course seeks to expand on UI-Led Revolutions in Distributed Computing." URL: http://cs.illinois.edu/news/2010/Feb22-3
  - [Jul 29, 2008] "Cloud Computing Initiative to Study Internet-Scale Systems."
    URL: http://cs.illinois.edu/node/282
  - [Apr 10, 2008] "Professor Indranil Gupta Receives Xerox Award for Research."
  - [Apr 17, 2006] "Computers can mimic nature and outperform themselves."
  - [Feb 1, 2006] "DCS faculty show high success level in earning prestigious CAREER award."
  - [Mar 9, 2005] "Myriad Honors, Awards, and Accolades for CS Faculty."

PREVIOUS AWARDS (AS A STUDENT)

- [1998] Ranked 3^{rd} in the class of 1998, IIT-Chennai, India; out of about 350 students.
- [1994] Secured 9^{th} rank in the IIT-JEE 1994 (Indian Institutes of Technology Joint Entrance Examination); out of a total of about 100,000 candidates nationwide.
- [1994] Secured ranks in other Engineering Entrance examinations in India: 6^{th} rank in Roorkee Entrance Examination, and 5^{th} rank in EAMCET (A.P. state in India).
- [1994] Recipient of Gold Medal in National Standard Examination in Physics, India; out of a total of about 20,000 candidates appeared.
- [1994] Recipient of the National Talent Search Examination Scholarship awarded by the National Council for Educational Research and Training, Government of India.
- [1992-94] Placed among the top 10 ranks in several national science talent search examinations in India.

MUSICAL ACTIVITIES

1. I host a weekly radio show on WEFT 90.1 FM (weft.org, Community Radio station in East Central Illinois). Show is called "East of Zero", featuring music from all lands east of zero degrees longitude (Eastern Hemisphere). Running since 2005. Listen live (at weft.org) every Tuesday night from 10 pm Central - midnight! Playlists: http://eastofzero.blogspot.com/, https://www.facebook.com/eastofzero/.
2. Ukulele Channel on Youtube, including a lecture song on Lamport Timestamps: https://tinyurl.com/indyukulele

CITIZENSHIP

U.S. Citizen.