LOPAMUDRA ROYCHOUDHURI
Curriculum Vitae

Associate Professor
Department of Computer Science,
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PERSONAL PROFILE

Faculty and researcher with twenty years of experience in teaching a wide spectrum of computer science undergraduate and graduate courses, with a current focus on cybersecurity. Leadership role in cybersecurity curriculum development. Certified Information Systems Security Professional (CISSP). Highly competent in course design and face-to-face/online/hybrid teaching at Hispanic serving institutions (HSI), founded on student-centered teaching and learning, with strong experience in teaching international students face-to-face and online. Active in community engaged scholarship and scholarship of teaching and learning. Mentored a number of undergraduate research projects. Past and present service include several high-impact committees. Author and co-author of four peer-reviewed journals and eleven conference publications. Collaborator in projects with Goodfellow Air Force Base, San Angelo, TX, Lifelong Learning Center at MSU, and Texas Tech University. Presented at many local, national and international venues.

Prior to academia, fourteen years of industry experience in system design, data distribution, database administration, security, and fault tolerance. Led and participated in the delivery of many highly visible projects for Fortune 500 customers. Certified Cisco, Oracle and Sybase Professional.

EDUCATION

- Ph.D., Computer Science, DePaul University, Chicago. Dissertation: *Proactive Rate and Error Control for Packet Multimedia Transmissions based on Loss Prediction*. Degree received: Fall 2008. Advisor: Dr. Ehab Al-Shaer.
- Master of Technology, Computer Science, Indian Statistical Institute, Calcutta, India, July 1988.
- Master of Science, Applied Mathematics, University of Calcutta, India, July 1986. Secured university-wide top position.
- Bachelor of Science, Mathematics, Presidency College, Calcutta, India, July 1982. Secured university-wide top position.

ACADEMIC APPOINTMENTS (Selected)

Associate Professor, Computer Science, Midwestern State, Wichita Falls, TX, 08/22-Present
- Responsibilities include curriculum development, teaching several undergraduate and graduate classes on security, programming, platform-based development, database management and computer architecture. Mentor of several undergraduate research projects, one of which won the best poster presentation award for the McCoy College of Science, Mathematics and Engineering. Chair of the department scholarship committee and serving the department graduate program evaluation committee. Faculty advisor, ACM Student Chapter at Midwestern State.
- Partnering with the Lifelong Learning Center of Midwestern State University in engaged scholarship that involves creating discourses for the community on contemporary computer science topics and their social and ethical implications.

Associate Professor, Computer Science, Angelo State University, San Angelo, TX, 09/18-08/22
Assistant Professor, Computer Science, Angelo State University, 09/12-08/18

- Responsibilities included curriculum development, online/hybrid/face-to-face teaching a wide spectrum of classes that spanned cybersecurity and networking, computer organization, programming and graphics. Mentored several undergraduate research projects, one of which won the best poster award at University of Texas at Dallas. Experience in teaching a robust body of online students.
- Leadership role in cybersecurity curriculum development.
  - Responsible for designing a minor in Cybersecurity Systems (2021) and a highly popular certificate of Cybersecurity Technologies (2018).
- Collaborator with Goodfellow Air Force Base, San Angelo, TX, in Computer Science program development at Angelo State catered towards military personnel. Key role in addition of Computer Science to the Bachelor of Applied Arts and Sciences (B.A.A.S) degree offered by Angelo State (2020). Organizer and instructor of invited cybersecurity workshops for military personnel (2017-2019). Recipient of Certificate of Appreciation from the Goodfellow Air Force Base "for exceptional support to the 344th Military Intelligence Battalion during the Computer and Network Security Workshop presented at Angelo State University", July 2019.
- Member of significant university committees. Selected activities:
  - Member, University Assessment Committee (Fall 2021-Spring 2022), assessing alignment of university-wide departmental objectives with university mission and values.
  - Member, Faculty Research Enhancement Program Review Committee (2016-2021), reviewing faculty research proposals for internal research grant awards.
  - Faculty Advisor, ACM Student Chapter at Angelo State (2020-2022). Played key role in initiating and establishing this chapter.
  - Faculty Senator (2015-2021). Chair, Bylaws committee, Faculty Senate (2015-2018).

INDUSTRY POSITIONS (Selected)

System Administrator, CNA Insurance, Chicago, IL, 01/98-02/01

- Administrator of a large (~200 Gigabyte) claim administration system, providing 24x7 support and performance monitoring of the Oracle database and web servers. Designed and implemented solutions for successful Y2K migrations.

Senior Consultant, Professional Services, Sybase Inc., Chicago, IL, 09/95-01/98

- Led and participated in system design, programming, performance tuning, database administration, data distribution and replication solutions for various Fortune 500 clients.

INDUSTRY CERTIFICATIONS
- Certified Information Systems Security Professional (CISSP), 2023. CISSP is a globally recognized cybersecurity certification, listed among the 10 best cybersecurity certifications by Forbes.
- Cisco Certified Network Associate (CCNA), 2013.
- Oracle Certified Professional (OCP), 2000.
- Sybase Certified Professional, 1997.

TEACHING RESPONSIBILITIES

Midwestern State University

- *CMPS 1044*   Computer Science I
- *CMPS 1063*   Data Structures and ADT
- *CMPS 4123*   Database Managements Systems
- *CMPS 4443/5373*   Platform Based Development Topics – Unix/Linux/Graduate Topics in Platform-Based Development – Unix/Linux, cross listed as Graduate
- *CMPS 4663/5363*   Computer and Network Security Topics – Network Security/Graduate Topic – Computer and Network Security, cross listed as Graduate
- *CMPS 5303*   Advanced Database Management Systems, Graduate
- *CMPS 5133*   Advanced Computer Architecture, Graduate

Angelo State University

- *CS1336*   Computer Science I
- *CS2324*   3D Modeling and Animation
- *CS3304*   Computer Organization and Programming
- *CS3310*   Principles of Unix
- *CS4307*   Ethical Issues in Computing
- *CS4314*   Computer Networking
- *CS4320*   Intro to Computer and Network Security
- *CS4340*   Offensive Security Techniques

RESEARCH PUBLICATIONS

Community Engagement Scholarship/Scholarship of Teaching and Learning

- Presenter, "Presenting Artificial Intelligence to the Community - a Learning Experience in Engagement", *6th Annual Engaged Scholarship Symposium*, Texas Tech University, Lubbock, TX, April 17-18, 2024.
- Presenter, "Teaching Ethics in Computing to Digital Natives – an Experiment", *41st Original Lilly Conference on College Teaching*, Miami University, Oxford, OH, Nov 17-19, 2022.
- Lopamudra Roychoudhuri, "'Towards an Engaging Hands-on Environment for a Beginning Networking and Security Undergraduate Class", *Journal of Systemics, Cybernetics and Informatics*, September 2018.
- Lopamudra Roychoudhuri, "Towards an Engaging Hands-on Environment for a Beginning Networking and Security Undergraduate Class", *The 12th International Multi-Conference on Society, Cybernetics and Informatics - Education and Information Systems, Technologies and Applications (IMSCI-EISTA 2018)*, Orlando, Florida, July 8 - 11, 2018.
- Presenter, "Learning Networking and Security in an Engaging Hands-on Environment", *Lilly Conference*, Austin, TX, January 4-8, 2018.
- Presenter, "Flipping a Highly Interactive Class—A Goal-Based Approach That Works", *35th Original Lilly Conference on College Teaching*, Miami University, Oxford, OH, Nov 19-22, 2015.

Journal publications

- Lopamudra Roychoudhuri, "'Towards an Engaging Hands-on Environment for a Beginning Networking and Security Undergraduate Class", *Journal of Systemics, Cybernetics and Informatics (JSCI),* September 2018.
- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Autonomic QoS Optimization of Real-time Internet Audio using Loss Prediction and Stochastic Control", *International Journal of Adaptive, Resilient and Autonomic Systems (IJARAS),* July-September, 2010.
- Lopamudra Roychoudhuri, Ehab Al-Shaer and Gregory B. Brewster, "On the Impact of Loss and Delay Variation on Internet Packet Audio Transmission", *Journal of Computer Communication (JComCom)*, Volume 29, Issue 10, June 2006.
- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Real-Time Packet Loss Prediction based on End-to-end Delay Variation", *IEEE Transactions on Network and Service Management (TNSM)*, Volume 2, Number 1, November 2005.

Conference publications (selected)

- Lopamudra Roychoudhuri, "Towards an Engaging Hands-on Environment for a Beginning Networking and Security Undergraduate Class", *The 12th International Multi-Conference on Society, Cybernetics and Informatics - Education and Information Systems, Technologies and Applications (IMSCI-EISTA 2018)*, Orlando, Florida, July 8 - 11, 2018.
- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Autonomic QoS Optimization of Real-time Internet Audio using Loss Prediction and Stochastic Control", *IFIP/IEEE Network Operations and Management Symposium (NOMS*), Salvador, Brazil, April 2008.
- Lopamudra Roychoudhuri, Ehab Al-Shaer and Raffaella Settimi, "Statistical Measurement Approach for On-line Audio Quality Assessment", *Passive and Active Measurement Conference (PAM) 2006*, Adelaide, Australia, March 30-31, 2006.
- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Real-time Audio Quality Evaluation for Adaptive Multimedia Protocols", *IEEE Management of Multimedia Networks and Services (MMNS) 2005*, October 24-26, 2005.

- Lopamudra Roychoudhuri and Ehab Al-Shaer, "On Loss Prediction for Real-time Packet Audio", Poster Paper, *IEEE INFOCOM 2005*, March 14-17, 2005.

- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Adaptive Rate Control for Real-time Packet Audio Based on Loss Prediction", *IEEE Globecom 2004*, Dallas, USA, November 30-December 2, 2004.

- Lopamudra Roychoudhuri and Ehab Al-Shaer, "Real Time Analysis of Delay Variation for Packet Loss Prediction", *IEEE Management of Multimedia Networks and Services (MMNS) 2004*, San Diego, USA, October 3-6, 2004. (Won Outstanding Student Paper Award).

- Lopamudra Roychoudhuri, Ehab Al-Shaer, "On Packet Loss Prediction for Real-time Packet Audio", *DePaul CTI PhD Symposium*, November 8, 2003.

- Lopamudra Roychoudhuri, Ehab Al-Shaer, Hazem Hamed, Gregory B. Brewster, "Audio Transmission over the Internet: Experiments and Observations", *IEEE ICC 2003*, May 11-15, 2003.

- Lopamudra Roychoudhuri, Ehab Al-Shaer, Hazem Hamed, Gregory B. Brewster, "On Studying the Impact of the Internet Delays on Audio Transmission " *IEEE IPOM 2002*, October 29-31, 2002.

- Jacob Furst et al, "Database Design for American Sign Language", *ISCA 15th International Conference on Computers and Their Applications (CATA-2000)*. 427-430.

RESEARCH PRESENTATIONS (Selected)

- Alexander Ryan and Lopamudra Roychoudhuri, "Payload Delivery using Metasploit - An Experiment in Offensive Security", *21st Undergraduate Research and Creative Activities Forum*, Midwestern State University, November 16, 2023.

- Edgar Zapata and Lopamudra Roychoudhuri, "On Analyzing the Accuracy of Financial Indicators in Predicting Stock Patterns Using Data Mining Tools", *20th Undergraduate Research and Creative Activities Forum*, Midwestern State University, April 20, 2023. *Won the best poster presentation award for McCoy College of Science, Mathematics and Engineering.*

- Stephen Pena and Lopamudra Roychoudhuri, "On Delay Variation for Internet Multimedia", *1st Annual UG Research EXPO*, University of Texas at Dallas, April 11, 2015. *Won the best poster award.*

- "Autonomic QoS Optimization of Real-time Internet Audio using Loss Prediction and Stochastic Control", Technical Session, *Network Operations and Management (NOMS)*, Salvador, Brazil, April 8, 2008.

- "Statistical Measurement Approach for On-line Audio Quality Assessment", Technical Session, *Passive and Active Measurement Conference,* Adelaide, Australia, March 31, 2006.

- "On Loss Prediction for Real-time Packet Audio", Poster, *IEEE Infocom,* Miami, FL, USA, March 15, 2005.

- "Adaptive Rate Control for Real-time Packet Audio Based on Loss Prediction", Technical Session, *IEEE Globecom, 2004,* Dallas, TX, USA, November 30, 2004.

- "Real Time Analysis of Delay Variation for Packet Loss Prediction", *IEEE Management of Multimedia Networks and Services (MMNS)* 2004, San Diego, CA, USA, October 3-6, 2004. *Won Outstanding Student Paper Award*.

- "Legacy Wrapping with Replication: An Effective and Reliable Interfacing Architecture", Technical Sessions, *Sybase European and North American Users' Conferences*, Barcelona, Spain, October 1996, Orlando, FL, USA, April 1997.

COLLABORATION ACTIVITIES

- Continuing collaboration with the Lifelong Learning Center at Midwestern State University, and creating discussions with the community on contemporary computer science topics.
  - Presentation, "Demystifying Artificial Intelligence and Raising Questions", February 5th & 12th, 2024.
  - Upcoming presentation, "Computing Technology – Raising Ethical and Social Questions", November 19, 2024.
- Participated in multiple collaborative projects with Texas Tech University, Lubbock, TX.
  - Attendee – 'Cybersecurity Workshop on Social Engineering', Computer Science Department, Texas Tech University, June 1-2, 2023.
  - Co-PI, "Building a Secure and Resilient Nation through National Preparedness Education", a joint grant proposal *s*ubmitted by Texas Tech University, University of Illinois at Urbana-Champaign, Angelo State University and Group NIRE to DHS/FEMA Notice of Funding Opportunity, FY 2017, Homeland Security National Training Program, July 2017.
  - Attendee and presenter, 'Red Teaming the Microgrid – SMART Center Workshop', GLEAMM (Global Laboratory for Energy Asset Management and Manufacturing), Texas Tech University, June 2017.

- o Attendee- Workshop on Digital Forensics for Faculty, Computer Science Department, Texas Tech University, Lubbock, TX, May 30th – June 1st, 2018.
  - o Attendee- Summer Cyber Security Workshop, Computer Science Department, Texas Tech University, July 14-18, 2014.
- PI of NSF grant proposal in collaboration with the department of Security Studies and Criminal Justice, Angelo State University.
  - o Lopamudra Roychoudhuri (PI), Rob LeGrand, R. Mark Pullin and Susan Williams, "Certificate in Computer and Network Security: An Interdisciplinary Undergraduate Program", submitted to NSF solicitation of CyberCorps(R) Scholarship for Service (SFS) Defending America's Cyberspace, Capacity track, Program Solicitation 15-584, December 2015 and December 2016.

ACADEMIC SERVICES AND PROFESSIONAL ACTIVITIES

- Chair, Computer Science Department Scholarship Committee (Fall 2023 – present).
- Member, Computer Science Department Graduate Program Evaluation Committee (Fall 2022 – present).
- Faculty Adviser, ACM Student Chapter at Midwestern State University (Fall 2022 - present).
- Member, University Assessment Committee, Angelo State University (2021-2022).
- Member, Faculty Research Enhancement Program Committee, Angelo State University (2016-2021).
- Member, ACM (Association of Computing Machinery) (2020-present).
- Faculty Adviser, ACM Student Chapter at Angelo State University (2020-2022).
- Member, Graduate Program Evaluation Committee, Computer Science department, Midwestern State University (2023).
- Member, Faculty Senate, Angelo State University (2015-2021).
- Chair, Bylaws Committee, Faculty Senate, Angelo State University (2015-2018).
- Member, Academic Excellence Committee, Angelo State University (2018).
- Member, Curriculum Committee, College of Science and Engineering, Angelo State University (2016-2018).
- Member, Curriculum Committee, College of Arts and Sciences, Angelo State University (2015-2016).
- Member, University Disciplinary Committee, Angelo State University (2015-2016).
- Peer reviewer of many scholarly articles. A selected list of reviews:
  - *Conferences:* International Multi-Conference on Society, Cybernetics, and Informatics: (IMSCI) (2018 – 2021), NOSSDAV 2007, ICNP 2007, MMNS 2007, INFOCOM 2008, NOMS 2008.
  - *Magazines:* IEEE Communications, May 2012.
  - *Journals*: Sage Open Publications (2019-2021), Journal of Computer Communications (JComCom) (2008).

GRANTS AND AWARDS

- Recipient - Certificate of Appreciation from the 344th Military Intelligence Battalion, Goodfellow Air Force Base, "for exceptional support to the 344th Military Intelligence Battalion during the Computer and Network Security Workshop presented at Angelo State University.", July 2019.

- Recipient – Faculty Mentored Research Grants for yearlong undergraduate research projects at Angelo State University, 2014-2015 and 2018-2019.

- Recipient - two internal grants at Angelo State University – (i) a Faculty Research Enhancement grant in FY 2013 worth $11,000 to set up a Networking and Security lab, (ii) a Faculty Research Enhancement grant in FY 2014 worth $10,000 for research on Internet measurement using PlanetLab, a global research testbed.

- Outstanding Student Paper Award for the paper "Real Time Analysis of Delay Variation for Packet Loss Prediction", *IEEE MMNS (Management of Multimedia Networks and Services) 2004.*