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Deepti Gupta

Education

2016–2021 : **PhD, Computer Science**, The University of Texas at San Antonio, San Antonio, TX, USA.
Dissertation title: Secure Infrastructure for Internet of Medical Things using Machine Learning

2014–2016 : **Master of Science, Computer Science**, The University of Texas at San Antonio, San Antonio, TX, USA.

2007–2009 : **Master of Technology, Computer Engineering**, Shobhit University, Meerut, India.

2004–2006 : **Master of Science, Mathematics**, Chaudhary Charan Singh University, Meerut, India.

2001–2004 : **Bachelor of Science, Mathematics**, Chaudhary Charan Singh University, Meerut, India.

Experience

August,2022– **Cloud Security Architect - Associate**, Goldman Sachs, Dallas, TX, USA.
Jan, 2023

August,2021– **Computer Science Instructor**, Department of Computer Science, Huston-Tillotson University, July,2022 Austin, TX, USA.

May,2021– **Senior Technical Intern**, hatchTank Innovations, San Antonio, TX, USA.
August,2021 Project description: I worked on SMARTAir HVAC project, where I developed a robust and practical integration with IoT applications and other IoT-enabled devices.

2017–2019 **Adjunct Faculty**, Department of Computer Science, St. Edward's University, Austin, TX, USA.

2016–2017 **Teaching Assistant**, Department of Computer Science, The University of Texas at San Antonio, TX, USA.

2007–2010 **Assistant Professor**, Department of Computer Engineering, Shobhit University, Meerut, India.

Research Grant

R[1] **Deepti Gupta**, Abena Primo, A Blockchain Based Secure Framework for Internet of Medical Things, Letter of Intent Approved, *National FinTech Center Research Grant*.

Publications

Journal Articles

J[1] **Deepti Gupta**, Smriti Bhatt, Maanak Gupta, and Ali Saman Tosun, Future Smart Connected Communities to fight COVID-19 Outbreak, *Internet of Things,* 100342, Elsevier, 2021.

J[2] Merve Ozkan-Okay, Refik Samet, Ömer Aslan, and **Deepti Gupta**, A Comprehensive Systematic Literature Review on Intrusion Detection Systems, *IEEE Access,* 2021.

J[3] Ömer Aslan, Merve Ozkan-Okay, and **Deepti Gupta**, Intelligent Behavior-Based Malware Detection System on Cloud Computing Environment, *IEEE Access,* 2021.

J[4] Ömer Aslan, Merve Ozkan-Okay, and **Deepti Gupta**, A Review of Cloud-Based Malware Detection System: Opportunities, Advances and Challenges, *European Journal of Engineering and Technology Research,*, volume 6, pages 1–8, 2021.

J[5] Ashwini Kumar Singh, Lakshmanan Kailasam, Tribikram Pradhan, and **Deepti Gupta**, Multifeature Analysis Based Influential Nodes Tracking in Dynamic Social Networks, *Information Sciences,* Elsevier, on Revision, 2021.

In Conference Proceedings

C[1] Shafika Showkat Moni, **Deepti Gupta** Secure and Efficient Privacy-preserving Authentication Scheme using Cuckoo Filter in Remote Patient Monitoring Network, *the 4th IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS),* 2022.

C[2] **Deepti Gupta**, Smriti Bhatt, and Ali Saman Tosun, Hierarchical Federated Learning for Vehicular Internet of Things: Real-World Use Case Scenarios, Submitted *IEEE International Conference on Big Data (IEEE BigData 2022),* 2022.

C[3] **Deepti Gupta**, Olumide Kayode, Smriti Bhatt, Maanak Gupta, and Ali Saman Tosun, Hierarchical Federated Learning based Anomaly Detection using Digital Twins for Smart Healthcare, *the 7th IEEE International Conference on Collaboration and Internet Computing (CIC),* 2021.

C[4] **Deepti Gupta**, Maanak Gupta, Smriti Bhatt, and Ali Saman Tosun, Detecting Anomalous User Behavior in Remote Patient Monitoring, *IEEE 22nd Inter-national Conference on Information Reuse and Integration for Data Science (IRI),* 2021.

C[5] **Deepti Gupta**, Olumide Kayode, Smriti Bhatt, Maanak Gupta, and Ali Saman Tosun, Learner's Dilemma: IoT Devices Training Strategies in Collaborative Deep Learning, *2020 IEEE 6th World Forum on Internet of Things (WF-IoT),* pages 1–6, 2020.

C[6] **Deepti Gupta**, Smriti Bhatt, Maanak Gupta, Olumide Kayode, and Ali Saman Tosun, Access Control Model for Google Cloud IoT, *2020 IEEE 6th Intl Conference on Big Data Security on Cloud (BigDataSecurity), IEEE Intl Conference on High Performance and Smart Computing,(HPSC) and IEEE Intl Conference on Intelligent Data and Security (IDS),* pages 198–208, 2020.

C[7] **Deepti Gupta**, Paras Bhatt, and Smriti Bhatt, A Game Theoretic Analysis for Cooperative Smart Farming, *2020 IEEE International Conference on Big Data (Big Data),* pages 2350–2359, 2020.

C[8] Olumide Kayode, **Deepti Gupta**, and Ali Saman Tosun, Towards a distributed estimator in smart home environment, *2020 IEEE 6th World Forum on Internet of Things (WF-IoT),* pages 1–6, 2020.

C[9] Ashwini Kumar Singh, Lakshmanan Kailasam, Tribikram Pradhan, and **Deepti Gupta**, Context-Aware Influential Nodes Tracking in Online Social Networks, *Pacific Asia Conference on Information Systems (PACIS),* 2021.

Book Chapter

B[1] **Deepti Gupta**, Paras Bhatt, and Smriti Bhatt, Game Theory Based Privacy Preserving Approach for Collaborative Deep Learning in IoT, *Deep learning for security and privacy preservation in IoT,* Springer, 2021.

Poster Sessions

P[1] **Deepti Gupta**, Olumide Kayode, Smriti Bhatt, Maanak Gupta, and Ali Saman Tosun, Towards Detecting Anomalous User Behavior using Hierarchical Federated Learning LSTM Approach *Submitted at Women in Cyber Security (WiCyS), 2022*

P[2] **Deepti Gupta**, Maanak Gupta Smriti Bhatt, and Ali Saman Tosun, Anomaly Detection Model for Remote Patient Monitoring Based on End User Behavior *Women in Cyber Security (WiCyS), 2021*

P[3] **Deepti Gupta**, Smriti Bhatt, Maanak Gupta, and Ali Saman Tosun, IoT Devices Training Strategies in Federated Learning *Women in Cyber Security (WiCyS)*.

P[4] **Deepti Gupta**, Rajendra Boppana, A Survey of Machine Learning Algorithms to Detect Network Attacks *COS Research Conference 2017, The University of Texas at San Antonio, San Antonio, USA.*

P[5] **Deepti Gupta**, Maanak Gupta Smriti Bhatt, and Ali Saman Tosun, Anomaly Detection Model for Remote Patient Monitoring Based on End User Behavior *the 7th Annual UTSA Architecture, Business, Engineering and Science Students' Conference, 2013, The University of Texas at San Antonio, San Antonio, USA.*

Workshops Organized

W[1] **Deepti Gupta**, and Smriti Bhatt, Enabling Smart Communities: Cloud-Enabled IoT Use Cases in AWS IoT and Google IoT Platforms (Hands-on workshop) *Women in Technology (WIT), Virtual Summit Fall 2021.*

W[2] **Deepti Gupta,** Internet of Medical Things (IoMT): Future of Smart Connected Healthcare *Workshop for Superposition V hackathon, 10th April, 2021.*

W[3] Smriti Bhatt, and **Deepti Gupta,** Cloud-Enabled IoT Workshop: AWS IoT and Google IoT Platforms *Presented at the 2021 CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference, 2021.*

W[4] Smriti Bhatt, and **Deepti Gupta,** Connected Ecosystems: Cloud-Enabled IoT Architectures, Use Cases and Challenges, 2021 *Anita.org Grace Hopper.*

Talks/Presentations

T[1] **Deepti Gupta,** Integration of Digital Twin and Hierarchical Federated Learning for V-IoT, *submitted RSA conference 2023*

T[2] **Deepti Gupta and Shafika Showkat Moni** Cuckoo Filter Based Privacy-Preserving Authentication Scheme for Future Smart Communities, *submitted at Women in Cyber Security (WiCyS), 2023*

T[3] **Deepti Gupta,** Digital Twin and Machine Learning: Securing the Smart Healthcare Ecosystem *the 2022 CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference, 2022*

T[4] **Deepti Gupta,** Federated Learning for Secure Smart Healthcare Ecosystem *Women in Tech Texas, May 2022*

T[5] **Deepti Gupta,** Federated Learning for Internet of Medical Things *WomenTech Global Conference, June 2022*

T[6] **Deepti Gupta,** Secure Infrastructure for Internet of Medical Things using Federated Learning *Cyberjutsu Cybersecurity Conference, June 2022*

T[7] **Deepti Gupta,** the Future of Smart Healthcare using Federated Learning *Women in Technology, 2022*

T[8] **Deepti Gupta,** Secure Infrastructure of Internet of Medical Things using Federated Learning *Submitted at the IEEE Women in Engineering International Leadership Conference (WIE ILC), 2022*

T[9] Smriti Bhatt and **Deepti Gupta,** Federated Learning for Enabling Secure Smart Communities: Current Technologies, Challenges and Future Directions *Women in Cyber Security (WiCyS), 2022*

T[10] **Deepti Gupta,** Women in Tech - Panelist *StarHacks, 2022.*

T[11] **Deepti Gupta,** Secure Smart Connected IoMT Ecosystems *Lightning talk at Women in Security and Cryptography Workshop, 2021.*

T[12] **Deepti Gupta,** Security Mechanisms for Internet of Medical Things *Lightning talk at CRA-WP Grad Cohort for Women, 23rd-24th April, 2021.*

T[13] **Deepti Gupta,** Connected Ecosystems: Cloud-Enabled IoT Architectures, Use Cases and Challenges *Anita.org Grace Hopper, 2021.*

T[14] **Deepti Gupta,** J. Chatradhi, S. Bobba, and T. Tandon, Data science in reference to professional and academic background *AnitaB.org Career Conversation, Roundtable talk, September 2021*

Fellowships & Awards

2021 **Alamo George "Chip" Meadows Memorial Scholarship** from ISSA Education Foundation.

2021 **Technologist of the year award** from Recognizing Reinventors.

2021 **iMentor Scholarship award** to attend iMentor workshop and ACM Conference on Computer and Communications Security (CCS).

2021 **Google Tapia Scholarship award** from CMD-IT/ACM Richard Tapia Conference.

2021 **Competitive Graduate Scholarship award** from the graduate school at the University of Texas at San Antonio.

2021 **Student Travel Grant** from the IEEE Symposium on Security and Privacy.

2021 **TAPIA Scholarship award** to attend the ACM Richard Tapia Celebration of Diversity in Computing Conference, 16th-18th September.

2021 **Grace Hopper Scholarship award** to attend AnitaB.org Grace Hopper Celebration.

2021 **Student Travel Grant** to attend Black Hat Asia.

2021 **Scholarship award** to attend Women in Cyber Security (WiCyS).

2021 **Student Travel Grant** to attend Programming Language Design and Implementation (PLDI) on $21st - 22nd$, June.

2021 **Student Travel Grant** to attend Programming Language Mentoring Workshop at 42nd ACM Programming Language Design and Implementation on 21st-23rd, June.

2021 **Student Travel Grant** to attend Privacy+Security Forum on $24th - 26th$, May.

2021 **Grad Cohort Scholarship award** to attend CRA-WP Grad Cohort for Women on April 23-24.

2021 **Student Travel Grant** to attend The Network and Distributed System Security Symposium (NDSS) on 21st-25th, February.

2020 **Competitive Graduate Scholarship award** from the graduate school at the University of Texas at San Antonio.

2020 **Scholarship award** to attend change leader scholar program at National Center for Women Information Technology (NCWIT).

2020 **iMentor Scholarship award** to attend iMentor workshop and ACM Conference on Computer and Communications Security (CCS).

2020 **TAPIA Scholarship award** to attend ACM Richard Tapia Celebration of Diversity in Computing Conference Scholarship, 16th-18th September.

2020 **First Runner up poster award** at Women in Cyber Security (WiCySv20).

2020 **Travel Grant** to attend for CyberW workshop at the 10th ACM Conference on Data and Application Security and Privacy, 13th March.

Professional Services

Technical Program Committee

- **SaT-CPS workshop**, *Program Committee Member*, Conjunction with ACM CODASPY, 2023.

- **The 18th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob 2022)**, *Technical Program Committee Member*, October 11-13, 2022.
- **Grace Hopper Celebration of Women in Computing (GHC), 2022**, *"Security & Privacy" and "Academia" Track Committee Member*.
- **SaT-CPS workshop**, *Program Committee Member and proceeding co-chairs*, Conjunction with ACM CODASPY, 2022.
- **The IEEE ICECS 29th IEEE International Conference on Electronics Circuits and System**, *Technical Program Committee*, 28th Nov – 1st Dec 2022.
- **2022 ADFSL Conference on Digital Forensics, Security and Law**, *Program Committee Member*, May 23-25, 2022.
- **SmartFarm: Workshop on Smart Farming, Precision Agriculture and Supply Chain**, Conjunction with the 2021 IEEE International Conference on Big Data (IEEE Big Data 2021).
- **Grace Hopper Celebration of Women in Computing (GHC), 2021**, *"Security & Privacy" Track Committee Member*.
- **Grace Hopper Celebration of Women in Computing (GHC), 2021**, *Hopper*.
- **SaT-CPS workshop**, *Program Committee Member and proceeding co-chairs*, Conjunction with ACM CODASPY, 2021.
- **IEEE IoT Vertical and Topical Summit for Tourism, 2021**, *Technical Program Committee*.
- **The IEEE ICECS 28th IEEE International Conference on Electronics Circuits and System**, *Technical Program Committee*, 28th Nov – 1st Dec 2021.
- **Women in Cyber Security (WiCyS), 2020**, *Program Committee Member*.
- **Grace Hopper Celebration of Women in Computing (GHC), 2020**, *"Security & Privacy" Track Committee Member*.

Committee Member

- **Board member-Secretary**, *Women in Cybersecurity (WiCyS) San Antonio*.
- **Data Science committee member**, *Anita Borg Institute*.
- **Blog and Award co-chair**, *the IEEE ComSoc Young Professionals*.
- **Workshop Coordinator**, *IEEE Future Networks*.
- **Member-at-Large, On-line Content Board**, *the IEEE ComSoc Young Professionals*.
- **Fellowships co-chair**, *the N2Women Board, N2Women is supported by several major professional associations such as ACM SIGCOMM, ACM SIGMOBILE and IEEE ComSoc*.
- **Volunteer**, *Women's Society of Cyberjutsu*.
- **IEEE ComSoc Member**.
- **IEEE Student Member**.
- **ACM Student Member**.

Reviewer

- **IEEE Transactions on Network Science and Engineering**.
- **Computers and Electronics in Agriculture**, *Elsevier Journal*.
- **Internet of Things and Cyber-Physical Systems**, *Elsevier Journal*.
- **Journal of Interconnection Networks**, *Elsevier Journal*.
- **Computers and Electrical Engineering**, *Elsevier Journal*.
- **Internet of Things**, *Elsevier Journal*.

- **Applied Computing and Informatics**, *Journal*.
- **Expert Systems, Publons,**, *Journal*.
- **Trust, Security and Privacy for Big Data**, *Taylor and Francis CRC Book*.
- **IEEE IoT Vertical and Topical Summit for Tourism (IoT-VTST), 2022**.
- **The 11th ACM Conference on Data and Application Security and Privacy (CODASPY)**, *26th-28th April, 2021, Online*.
- **International Conference on Secure Knowledge Management (SKM) in the Artificial Intelligence Era**, *October 8th-9th, 2021, San Antonio, TX, USA*.
- **EdgeDL 2021, the 4th International Workshop on EdgeDL: Deep Learning on Edge for Smart Health and Wellbeing Applications**, *co-located with SMARTCOMP 2021, 23rd-27th August, 2021*.
- **The 7th IEEE World Forum on the Internet of Things (WF-IoT, 2021)**, *New Orleans, USA, 14th-18th June, 2021*.

Mentor

- **Superposition AMPLIFY pilot program**, *Mentor of Master and high school student*.
- **Programming Language Design and Implementation (PLDI)**, *Mentor for Programming language*.
- **Reinvent-A-Thon**, *Mentor of high school students*.

Teaching Courses

Spring, 2022 : **COSC 1300: Intro to Computers**, Huston-Tillotson University, Austin, TX.

Spring, 2022 : **COSC 1323: Programming Foundations II**, Huston-Tillotson University, Austin, TX.

Spring, 2022 : **COSC 2326: Intro to Enterprise Computing**, Huston-Tillotson University, Austin, TX.

Fall, 2021 : **COSC 1300: Intro to Computers**, Huston-Tillotson University, Austin, TX.

Fall, 2021 : **COSC 1312: Programming Foundations I**, Huston-Tillotson University, Austin, TX.

Fall, 2021 : **COSC 3312: Database and Info Retrieval**, Huston-Tillotson University, Austin, TX.

Spring, 2019 : **COSC 2316: Intro-Algorithmic Problem Solv**, St. Edward's University, Austin, TX.

Fall, 2018 : **COSC 1301: Introduction to Problem Solving and Computing**, St. Edward's University, Austin, TX.

Fall, 2018 : **COSC 3336: Programming Languages**, St. Edward's University, Austin, TX.

Spring, 2018 : **COSC 1301: Introduction to Problem Solving**, St. Edward's University, Austin, TX.

Fall, 2017 : **COSC 1318: Quantitative Applications Software for PCs**, St. Edward's University, Austin, TX.

Fall, 2016 : **CS 2233: Discrete Mathematics**, The University of Texas at San Antonio, San Antonio, TX.

Fall, 2016 : **CS 3723: Programming Languages**, The University of Texas at San Antonio, San Antonio, TX.

2007-2010 : **Discrete Structure, Data Structure, Design and Analysis of Algorithms, Data Mining, Neural Network, and Software Engineering**, Shobhit University, India.