

## PRINKLE SHARMA

**Information Security and Digital Forensics**  
**Business Building 322**  
**+1-(518)-442-1508**

*Prinkle Sharma*

### EDUCATION

- 2020                    **Ph.D.** (Electrical and Computer Engineering), UMass Dartmouth.  
Dissertation: Misbehavior Detection in Vehicular Networks with Machine Learning. Doctoral Mentor (Dr. Hong Liu, Ph.D.).
- 2016                    **MS.** UMass, Dartmouth, Department of Computer and Information Science.
- 2012                    **B.Tech.** (Information Technology), Punjab Technical University.

### EDUCATIONAL EMPLOYMENT

- 2020 – present        **Assistant Professor**, Information Security and Digital Forensics,  
University at Albany, State University of New York.

### ADDITIONAL EMPLOYMENT

- 2019 (Summer)        **Machine Learning Intern**, Amadeus North America, Waltham,  
Massachusetts Employer Travel Cost Prediction Tool Using Machine Learning.
- 2018 (Summer)        **Automotive Research Intern**, Onboard Security Inc., Wilmington,  
Massachusetts, Integrating Plausibility Checks in V2V communication to detect  
misbehavior using Machine Learning.
- 2015 - 2020            **Research and Teaching Assistant**, Internet of Things Lab at Electrical and  
Computer Engineering. UMass Dartmouth.

### HONORS AND AWARDS

- John S. Levato Endowed Undergraduate Teaching Award, SUNY – University at Albany, 2023
- School of Business Service Award – Faculty, 2023
- Elite-Quality Journal Publication Research Award, SUNY – University at Albany, 2022

Faculty Research Award Program (FRAP-B), SUNY - University at Albany, 2021

Full Tuition Waiver Award, UMass Dartmouth, 2017-2020

Graduate Student Senate Travel Fund, UMass Dartmouth, 2019

Graduate Student Senate Travel Fund, UMass Dartmouth, 2018

Graduate Student Travel Fund, UMass Dartmouth, 2018

Article published in IEEE innovation spotlight magazine demonstrating research in artificial intelligence (January 2018 issue: <https://innovate.ieee.org/innovation-spotlight/self-drivingvehicles/>)

Rising Star of the Year, UMass Dartmouth, 2016-2017

Resident Assistant of the Year, UMass Dartmouth, 2016-2017

Distinguish Doctoral Fellowship, UMass Dartmouth, 2016-2017

### **PUBLICATIONS Peer Reviewed Articles**

Sharma, P. & Gillanders\*, J (2022). Cybersecurity and Forensics in Connected Autonomous Vehicles: A Review of the State-of-the-Art, *IEEE Access*, Vol 10, pp. 108979-108996, doi: 10.1109/ACCESS.2022.3213843. (Impact Factor: 10.98)

Sharma, P. & Liu, H (2021). A Machine Learning-Based Data-Centric Misbehavior Detection Model for Internet of Vehicles, *IEEE Internet of Things Journal*. Vol. 8, no. 6, pp. 4991-4999, 15 March 2021, doi: 10.1109/JIOT.2020.3035035. (Impact Factor: 4.34)

\* Indicates student co-author

### **Manuscripts under Review in Peer Reviewed Journals**

Sharma, P. & Ramsamooj\*, D. & Liu, H (2022). A Data Centric Misbehavior Detection Model for Vehicle-to-Infrastructure Communication Using Deep Learning. *IEEE Transactions on Intelligent Transportation Systems*

Leonardo\*, C. & Sharma, P. & Liu, H (2022). Machine Learning in Wireless Sensor Network (WSN) for Structural Health Monitoring of Bridges. *IEEE Wireless Communication Letter*

\* Indicates student co-author

### **Work in Progress**

Sharma, P & Goel, S. Examining Behavior of Digital Human using Deep Fakes

Sharma, P & Goel, S. Threat Modelling for Large Language Models

Sharma, P. AI-Based Forensics Investigation Tool for Autonomous Vehicles

Sharma, P. Kul, Gokhan. Engineering the Driver Assist Technology Forensics through Inter-Service Operability and Explainable AI

Juan Jose, Contreras Castillo & Sharma, P. & Sherali, Zeadally. Artificial Intelligence for Smart Traffic Management in VANET

Sharma, P & Liu, H. Misbehavior Detection in Smart Cities using Explainable Artificial Intelligence

### **GRANT FUNDING**

Role: Principal Investigator

Project: Sharma, P. AI-Based Forensics Investigation Tool for Autonomous Vehicles

Source: University at Albany - Faculty Research Awards Program (FRAP-B)

Time Period: 5/1/21-4/30/23 Total

Funding: \$1,647

### **Proposals not Funded**

Role: Co-Principal Investigator (Gokhan Kul, PI)

Project: Engineering the Driver Assist Technology Forensics through Inter-Service Operability and Explainable AI

Source: NSF SaTC

Time Period: 01/1/23-12/31/26

Total Funding: ~\$500,000 (Not Funded)

### **PUBLISHED ABSTRACTS AND PRESENTATIONS AT SCHOLARLY CONFERENCES**

Sharma, P., Liu, H., Wang, H., & Zhang, S. (2017, April). Securing wireless communications of connected vehicles with artificial intelligence. In *2017 IEEE international symposium on technologies for homeland security (HST)* (pp. 1-7). IEEE.

Sharma, P., Petit, J., & Liu, H. (2018, August). Pearson correlation analysis to detect misbehavior in vanet. In *2018 IEEE 88th Vehicular Technology Conference (VTC-Fall)* (pp. 1-5). IEEE.

So, S., Sharma, P., & Petit, J. (2018, December). Integrating plausibility checks and machine learning for misbehavior detection in VANET. In *2018 17th IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 564-571). IEEE.

Sharma, P., Siddanagaiah, U., & Kul, G. (2020, May). Towards an AI-Based After-Collision Forensic Analysis Protocol for Autonomous Vehicles. In *2020 IEEE Security and Privacy Workshops (SPW)* (pp. 240-243). IEEE.

Sharma, P., Austin, D., & Liu, H. (2019, November). Attacks on machine learning: Adversarial examples in connected and autonomous vehicles. In *2019 IEEE International Symposium on Technologies for Homeland Security (HST)* (pp. 1-7). IEEE.

Gillanders, J & Sharma, P. Cybersecurity for Autonomous Vehicles: Attacks and Defense Strategies. 2022 *17<sup>th</sup> Annual Symposium on Information Assurance (ASIA'22)* at 24th New York State Cyber Security Conference (NYSCSC), 2022.

### **INVITED PRESENTATIONS**

Sharma, P. Cybersecurity in Connected Autonomous Vehicles at Research Night for Digital Forensics Student Association at SUNY – UAlbany, March 1, 2022

Sharma, P. Cyber Security Issues in Connected Vehicles at the Annual Symposium on Information Assurance (ASIA), Online, June 2021

Sharma, P. Attacks on Machine Learning within VANET at 2019 IEEE International Symposium on Technologies for Homeland Security – Woburn, MA, November 2019

Sharma, P. Identifying Misbehavior using Pearson Correlation in VANET at 88th IEEE Vehicular Technology Conference – Chicago, IL, October 2018

Sharma, P. Integrating Plausibility Checks to identify location-based attacks in Vehicular Networks at 17th IEEE International Conference on Machine Learning and Applications – Orlando, FL, December 2018

Sharma, P. Using AI based filters to identify location spoofing attacks in Connected Vehicles at 2017 IEEE International Symposium on Technologies for Homeland Security – Woburn, MA, November 2017

### **TEACHING Undergraduate Courses Taught, University at Albany**

UFSP 100 – Freshman Seminar Course (F22, F23).

BFOR 418/618 – Reverse Malware Engineering (F23).

BFOR 306 – Database Security and Forensics (S21, S22, S23).

BFOR 100 – Introduction to Information Systems (F20, S21, F21, S22, F22, S23, F23).

### **Teaching Experience, University of Massachusetts, Dartmouth**

ECE 202: Circuit Theory II (Teaching Assistant S19, S20)

EGR-101: Introduction to Engineering and Computing (Instructor, F18, F19)

ECE 263: Embedded System Design (Teaching Assistant F17, S18, S19)

ECE 369: Computer Networks (Teaching Assistant, S17, S18)

ECE 565: Operating System (Teaching Assistant, F17)  
ECE 548: Cyber Threads (Teaching Assistant, F17)  
ECE 161: Fundamentals of C (Teaching Assistant, S17)

### **Master's Thesis Projects, Field Placements, and Internships**

Devaj Ramsamooj (2023) *A Data Centric Misbehavior Detection Model for Vehicle-to-Infrastructure Communication Using Deep Learning*. UMass Dartmouth. M.S. Thesis. Co-Chair.

Cedric Leonardo (2023) *Wireless Sensor Network (WSN) for Structural Health Monitoring of Bridges*. UMass Dartmouth. M.S. Thesis. Co-Chair.

David Austin (2019) *Machine Learning to identify threats in VANET*. UMass Dartmouth. M.S. Thesis. Mentor.

Robert Mushall (2019) *EmuLab of Security Credential Management System (SCMS) for Vehicular Communications*. UMass Dartmouth. M.S. Thesis. Mentor.

Brian P Etienne (2018) *Simulating and Attacking Vehicular Networks*. UMass Dartmouth. M.S. Thesis. Mentor.

Matthew Furtado (2018) *Identifying threats to the security credential management system for vehicular communications*. UMass Dartmouth. M.S. Thesis. Mentor.

### **Undergraduate Students Mentored**

James Gillanders (2024) *Cyber Security in Connected Autonomous Vehicles*. Emerging Technology and Entrepreneurship Complex at UAlbany. Internship Mentor

### **SERVICE Department of ISDF (in reverse chronological order)**

**Chair**, Search Committee for ISDF Tenure Track Faculty Recruitment, 2022 – 2023, **Successful**  
**ODI Representative**, Search Committee for ISDF/ISBA AI Tenure Track Faculty Recruitment, 2022-2023, **Successful**

**Member**, Search Committee for ISDF Lecturer Faculty Recruitment, Summer 2023, **Successful**

**Member**, Review Committee of New Master level Course Curriculum, Fall 2022

**Representative** of ISDF Department, Fall Preview Day, Fall 2022

**Representative** of ISDF Department, Open House, Spring 2022

**Representative** of ISDF Department, PTech, Spring 2022

**Representative** of ISDF Department, Fall Preview Day, Fall 2021

**Representative** of ISDF Department, Munch with the Major, Fall 2021

### **School or College**

**Chair**, Impact Committee, 2023 – present

**Member**, Research Committee, 2022 - 2023

**Member**, Teaching and Learning Committee, 2021-2022

**Representative** of University at a two-day virtual seminar organized by Harvard Business Publishing on “Teaching in Online and Hybrid Classes”, Fall 2021

**Representative** of the ISDF Department at Virtual Fair for High School Students, Fall 2021

**Representative** of University at ESG Symposium, Fall 2022 University at Albany, State University of New York

**Teaching**, UFSP 100 Seminar Course, Fall 2022

**Faculty Advisor**, Digital Student Association (2022-2023)

**Representative**, Stage Duty at Universities Convocation, S21-22

**Faculty Advisor**, Woman in Cyber Security (2021-2022),

### **Professional Service**

**Associate Editor**, IEEE Transaction on Artificial Intelligence, 2022 – present

**Co-Editor**, Book Titled - Practical Guide to Security and Privacy in Cyber-Physical Systems: Foundations, Applications, and Limitations” with World Scientific Publishers (2023)

**Program Chair**, Annual Symposium on Information Assurance (ASIA), 2021 and 2022

**Reviewer**, IEEE Transactions on Dependable and Secure Computing, 2022 - present

**Reviewer**, IEEE Access, 2021 - present

**Reviewer**, IEEE Communication Letter, 2021 - present

**Reviewer**, IEEE Transaction on Intelligent Vehicles, 2020 - present

**Reviewer**, IEEE- Intelligent Transportation System, 2019 - present

**Program Committee**, VEHICULAR 2020, 2021 The International Conference on Advances in Vehicular Systems, Technologies, and Applications, 2020, 2021, and 2022

### **PROFESSIONAL AFFILIATIONS**

IEEE Member, 2017-present.