JAYNEEL VORA

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EDUCATION

University of California at Davis Fall 2019- **Spring 2024(expected)**
Ph.D. in Computer Science (3.855/4.00), Advisor: Dr. Prasant Mohapatra
Thesis: Game Theoretical Models for Multiple Defender Scenarios

Institute of Technology, Nirma University 2015-2019
B.Tech in Computer Engineering, Major Advisor: Dr. Sudeep Tanwar

INTERNSHIP EXPERIENCE

Graduate Student Researcher at Lawrence Berkeley National Laboratory, Berkeley, CA Jun-Sep 2020
Differentially Private(DP) Dataset Access with Dr. Sean Peisert
- Designed query engine in the UC CORDS dataset that outputs results, preserving privacy and maintaining accuracy for analysts.
- Investigated (DP) frameworks- SmartNoise and OpenDP for common queries while exploring utility to OMOP based databases.
- Evaluated the query engine on clustering methods and identified the impact of Laplacian noise parameters on convergence metrics.

AI and HCI Intern at BrunHealth Pvt Ltd, India May 2018-Apr 2019
Pregnancy Chatbot System with Dr. Prashant Jha
- Wrote algorithms for profiling users and match messages to send to increase user interactivity on the company's FB page.
- Created an information delivery system for expectant mothers, using reactions to messages and identifying a user's stage in the journey.
- The chatbot achieved a 29% increase in user retention and 44% increase in user turnaround time compared to human response.

Tech Intern at Sentinel Healthcare, Seattle, WA (now Alertive Healthcare) May 2017 - July 2017
Gait Analysis System and Stroke Detection with Dr. Nirav Shah
- Observed doctors and therapists to understand the workflow in hospitals, clinics, and care homes.
- Created an Arduino offline gait-analyzing wearable prototype, achieving a 73% accuracy with gait state and transition classification.
- Feasibility study with ophthalmologists on an OpenCV-based stroke detection prototype and fundus image processing app for retinopathy.

RESEARCH EXPERIENCE

University of California- Davis Sept 2019- present
Game Theoretical Models for Multiple Defender Scenarios (current)
- Learning parameterized 'human' strategies from Prisoner's Dilemma(PD) trials to discuss methods to identify the intent behind actions.
- Validating parameters of information sharing(IS) amongst players in a network with added context in a repeated IS game as a PD

Investigated mm-wave communication protocols and reviewed mm-wave sensing for VANETs.

Mathematical Challenges and Opportunities for Autonomous Vehicles Sept-Dec 2020
- Core-participant, "Long Program: Mathematical Challenges and Opportunities for Autonomous Vehicles," at IPAM, UCLA.
- Member of a working group on 'Perception, Safety, and Control of Machine Learning in Autonomous Driving'.
- Investigated the case of using dropout layers in deep neural networks to model uncertainty along with Bayesian inference.

Nirma University Jul 2015- May 2019
- Built a proof of concept studying the use of fog computing paradigms and tactile internet infrastructure to use cases in patient monitoring.
- Explored distributed system paradigms for patient monitoring and e-health records storage focusing on preserving privacy.
- Reviewed and published a review of security attacks on VANETs focusing on types of attacks and corresponding safety protocols.

AWARDS

1. CS TA of the year award UC Davis- 2021
2. Best Paper Award, 2019 IEEE ICC Workshops: SecSDN
3. CS Department Fellowship, UC Davis- 2019
4. Travel Award, *IEEE COMSOC* for attending IEEE GLOBECOM 2018

TEACHING

1. ECS 390 Teaching in Computer Science, Instructor FQ20, FQ21
2. ECS 132 Probability and Statistical Modeling, Lead Graduate Teaching Assistant SS1- 20
3. ECS 20 Discrete Mathematics, Lead Graduate Teaching Assistant WQ20, SQ20,WQ21, SQ21

SELECTED PUBLICATIONS (Google Scholar: Link)

1. **Vora J.**, Kaneriya S, Tanwar S, Tyagi S, Kumar N, Obaidat M, "TILAA: Tactile Internet-based Ambient Assisted Living in Fog Environment". Future Generation Computer Systems, Elsevier
2. S. Tanwar, **Vora J.**, S. Tyagi, N. Kumar, and M.S. Obaidat"A Systematic Review on Security Issues in VANET", Security and Privacy Journal, Wiley
3. S. Tanwar, **Vora J.**, S. Kaneriya, S. Tyagi, N. Kumar, V. Sharma, I.You, "Human Arthritis Analysis in Fog Computing Environment using Bayesian Network Classifier and Thread Protocol", IEEE Consumer Electronics Magazine
4. **Vora J.**, S Tanwar, S Tyagi, N Kumar, and Joel J P C Rodrigues, "HRIDaaY: Ballistocardiogram-based Heart Rate Monitoring Using Fog Computing". IEEE Global Communications Conference (IEEE GLOBECOM-2019), Hawaii, USA, 9-13 Dec 2019.
5. Kaneriya S,**Vora J.**, Tanwar S, Tyagi S, "Standardising the use of Duplex Channels in 5G-WiFi Networking for Ambient Assisted Living", 2019 IEEE International Conference on Communications Workshops (ICC Workshops): SecSDN: Secure and Dependable Software Defined Networking for Sustainable Smart Communities (ICC 2019 Workshop - SecSDN)", 20-24 May 2019, Shanghai, China
6. **Vora J.**, S Tanwar, S Tyagi, N Kumar, M.S. Obaidat and Joel J P C Rodrigues, "BHEEM: A Blockchain-based Framework for Efficient Storage and Maintenance of Electronic Health Records". IEEE Global Communications Conference (IEEE GLOBECOM-2018), Abu Dhabi, UAE, 09-13th Dec 2018

SKILL

Mathematical Maturity	Discrete Math, Calculus, Linear Algebra, Complex Analysis, Optimization
Theory Maturity	Differential Privacy, Federated Learning, Consensus, Deep Learning, Distributed Systems
Programming Language	Python, R, C, C++, Java, MATLAB, SQL, PHP, Go, Qiskit
Framework and Tools	Tensorflow, Git, LaTeX, Docker, MongoDB, Apache Spark, Tableau

PROFESSIONAL ACTIVITY

1. Program Committee Member, GameSec 2021
2. Reviewer, Wiley- Security and Privacy Journal
3. Shadow Program Committee, IEEE Security and Privacy 2020
4. GSA Representative, UC SHIP and Committee on Courses