

# VISHNU ASUTOSH DASU

[Google Scholar](#) ◇ [GitHub](#) ◇ [LinkedIn](#) ◇ [vdasu@psu.edu](mailto:vdasu@psu.edu) ◇ +1 (582) 203-9641 ◇ [vdasu.github.io](https://vdasu.github.io)

## EDUCATION

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- **Pennsylvania State University** May 2024 - Present  
Doctor of Philosophy, Computer Science and Engineering  
– *Advisor*: Prof. Gary Tan  
– *Research Area*: Trustworthy Machine Learning and Software Security  
CGPA: 3.92/4
- **Pennsylvania State University** Aug 2022 - May 2024  
Master of Science, Computer Science and Engineering  
– *Thesis*: “Mitigating Unfairness in Deep Learning”  
– *Advisor*: Prof. Gary Tan  
CGPA: 3.92/4
- **Manipal Institute of Technology (MIT), Manipal** July 2016 - July 2020  
Bachelor of Technology, Computer Science and Engineering  
– *Minor in Big Data*  
CGPA: 8.71/10

## SELECTED PUBLICATIONS

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*Citations: 116, h-index: 6*

\* - Equal Contribution/Alphabetical Order

- **Privacy-Preserving Data Deduplication for Enhancing Federated Learning of Language Models**  
*Conditionally Accepted at Network and Distributed System Security (NDSS) Symposium, 2025*  
Aydin Abadi\*, Vishnu Asutosh Dasu\*, Sumanta Sarkar\*
- **NeuFair: Neural Network Fairness Repair with Dropout**  
*33rd ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA)*  
Vishnu Asutosh Dasu, Ashish Kumar, Saeid Tizpaz-Niari, Gang Tan
- **FLTrojan: Privacy Leakage Attacks against Federated Language Models Through Selective Weight Tampering**  
*Pre-print on arXiv and under review at USENIX Security, 2025*  
Md Rafi ur Rashid, Vishnu Asutosh Dasu, Kang Gu, Najrin Sultana, Shagufta Mehnaz
- **PROV-FL: Privacy-preserving Round Optimal Verifiable Federated Learning**  
*15th ACM Workshop on Artificial Intelligence and Security (AISEC), ACM CCS, 2022*  
Vishnu Asutosh Dasu, Sumanta Sarkar, Kalikinkar Mandal
- **Side Channel Attack On Stream Ciphers: A Three-Step Approach To State/Key Recovery**  
*IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES), 2022*  
Satyam Kumar, Vishnu Asutosh Dasu, Anubhab Baksi, Santanu Sarkar, Dirmanto Jap, Jakub Breier, Shivam Bhasin
- **EvoquerBot: A multimedia chatbot leveraging synthetic data for cross-domain assistance**  
*Alexa Prize TaskBot Challenge 2 Proceedings*  
Team EvoquerBOT, Penn State University
- **New Results on Machine Learning-Based Distinguishers**  
*IEEE Access, 2023*  
Anubhab Baksi\*, Jakub Breier\*, Vishnu Asutosh Dasu\*, Xiaolu Hou\*, Hyunji Kim\*, Hwajeong Seo\*
- **Three Input Exclusive-OR Gate Support For Boyar-Peralta’s Algorithm**  
*22nd International Conference on Cryptology in India (Indocrypt), 2021*  
Anubhab Baksi, Vishnu Asutosh Dasu, Banashri Karmakar, Anupam Chattopadhyay, Takanori Isobe
- **LIGHTER-R: Optimized Reversible Circuit Implementation For SBoxes**  
*32nd IEEE International System-on-Chip Conference (SOCC), 2019*  
Vishnu Asutosh Dasu, Anubhab Baksi, Sumanta Sarkar, Anupam Chattopadhyay

## ACADEMIC AND WORK EXPERIENCE

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- **Pennsylvania State University** Aug. 2022 - Present  
*Graduate Research/Teaching Assistant* University Park, PA, USA
  - Supervisors: Prof. Gary Tan, Prof. Saeid Tizpaz-Niari, & Prof. Shagufta Mehnaz
  - Projects: Private data extraction attacks on federated LLMs, Trustworthy Code Generation LLMs, Fairness of LLMs and Machine Learning
- **Tata Consultancy Services (TCS) Research** Sept 2020 - June 2022  
*Researcher, Cybersecurity and Privacy* Bangalore, India
  - Supervisors: Prof. Sumanta Sarkar & Manish Shukla
  - Project: Privacy-preserving federated learning, Insider threat detection from network logs
- **Citrix R&D** Jan 2020 - June 2020  
*Software Engineer Intern, Citrix Analytics for Security (CAS)* Bangalore, India
  - Full-stack developer (Citrix Analytics for Security)
- **Nanyang Technological University (NTU)** Dec 2019  
*Research Intern* Singapore
  - Supervisor: Prof. Anupam Chattopadhyay
  - Project: Optimized hardware implementations of block ciphers
- **TCS Research** May 2019 - July 2019  
*Research Intern, Cybersecurity and Privacy* Hyderabad, India
  - Supervisor: Dr. Chalamala Srinivasa Rao
  - Project: Adversarial attacks and defenses on Convolution Neural Networks (CNNs)
- **Tiny Banyan Technologies** Feb 2019 - May 2019  
*Machine Learning Intern* Remote
  - Project: Real-time detection of humans and firearms from CCTV footage using deep learning
- **Indian Statistical Institute** May 2018 - July 2018  
*Summer Scholar* Kolkata, India
  - Supervisor: Prof. Dipti Prasad Mukherjee
  - Project: 3-D coordinate estimation of humans from 2-D live video feed
- **Project Manas (AI Robotics)** Feb 2018 - Feb 2019
  - Projects: Clustering and tracking LIDAR point clouds, Sensor fusion using Kalman Filters

## SKILLS

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- **Beginner:** Go, Rust, Swift, iOS Development, Android Development
- **Intermediate:** C++, Java, Javascript, HTML, Cryptography, SQL, Web Development, Computer Vision, Image Processing, Natural Language Processing, Robotics, ROS, Git, Linux
- **Advanced:** Machine Learning, Deep Learning, Trustworthy ML, Python, C, L<sup>A</sup>T<sub>E</sub>X, Security, Privacy

## SERVICE

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- **External Reviewer**, Network and Distributed System Security (NDSS) Symposium 2025
- **Reviewer**, ReScience Present

## AWARDS AND ACHIEVEMENTS

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- **TCS Citation Award** ( $3\times$  recipient): Received the TCS Citation Award and appreciation from the Chief Technical Officer and Head of TCS Research thrice for outstanding contribution to the organization.
- **Scholarship**: Received a scholarship to attend the *Winter School on Responsible AI* in Israel.
- **Best Project Award**: Received the Best Project Award during the *Fifth Summer School on Computer Vision, Graphics and Image Processing*, Indian Statistical Institute (ISI) Kolkata.
- **IGVC**: Placed 2<sup>nd</sup> in the Interoperability Profiles Challenge and 9<sup>th</sup> overall at *Intelligent Ground Vehicle Competition (IGVC)* 2018. Second-best among all teams from India.
- **ACM ICPC Regionals**: Represented MIT Manipal at the 2017 *ACM ICPC Asia Regional Contest*.
- **DAGsHub Award**: Received a \$500 award from *DAGsHub* for completing the *ML Reproducibility Challenge Spring 2021*.