SANCHARI BISWAS

sanchari.biswas@temple.edu (240) 644-3291 https://www.linkedin.com/in/sanchari

PROFILE

Detail-oriented and driven computer science graduate student pursuing an MS degree in December 2024, specializing in artificial intelligence and data mining. Currently focused on integrating Large Language Models (LLMs) and Retrieval-Augmented Generation (RAG) for a final project. Possessing a Master's degree in Telecommunications, I have practical experience in high-stakes environments working with Comcast's Smart Network Platform team and United Airlines' Global NOC team. Proficient in programming languages such as Python, Java, and C, I have a strong foundation in database management and network protocols. Demonstrated ability to leverage technology for innovative solutions, consistently improving operational efficiency in telecommunications and network environments.

EXPERIENCE

ADJUNCT INSTRUCTOR, TEMPLE UNIVERSITY; PHILADELPHIA, PA – 2025-PRESENT

- Courses Taught:
  - Computer & Network Security
  - Network Technologies
  - Computer Systems Security & Privacy
- Designed research-driven coursework integrating contemporary vulnerabilities (e.g., zero-day exploits, LLM security risks, supply-chain attacks)
- Incorporated analysis of recent security research papers into student-led discussions and critiques
- Translated cutting-edge security research into hands-on lab modules

GRADUATE RESEARCH ASSISTANT, TEMPLE UNIVERSITY; PHILADELPHIA, PA – 2021-2022

NATIONAL SCIENCE FOUNDATION-SUPPORTED RESEARCH

- **Network Policy Representation System**
  - Conducted research to address limitations in managing policy information in network configurations, specifically for SDN and BGP
  - Co-authored “Design and Implementation of a Strong Representation System for Network Policies”, introducing a novel approach to network policy management that translates network policies into relational data
  - Developed and evaluated relational policies, leveraging SQL for a scalable and flexible representation of complex network states, effectively enhancing accessibility and operability within distributed networking environments
- **IoT Device Interaction in Smart Homes**
  - Explored IoT interactions and potential policy conflicts in smart home devices, focusing on challenges from incomplete user knowledge of cumulative device behaviors
  - Conducted a literature review of foundational research, including frameworks like dSpace, which abstracts IoT device interactions, and IotSan, a model-checking tool for identifying interaction flaws

- Proposed a scalable smart home representation model, unifying user-defined intents and IoT application policies, with a progressive approach that simplifies multi-device control and mitigates policy conflicts

QUALITY ASSURANCE ANALYST, COMCAST CABLE CORP.; PHILADELPHIA, PA – 2018-2020

- Engineering automation and manual tests for platform stability of Smart Network Platform (SNP) in order to ensure quality, security, and stability of new developments as well as existing features
- Reducing defect rates through meticulous attention to detail during code reviews, working closely with developers to address any identified issues quickly
- Participating in regular meetings with cross-functional teams to discuss progress updates, communicate concerns or challenges, and ensure alignment of project goals
- Reporting progress, test metrics and results to project stakeholders
- Maintaining comprehensive knowledge of relevant industry regulations and standards, ensuring compliance throughout the QA process

NETWORK ANALYST II, UNITED AIRLINES LLC.; DES PLAINES, IL – 2017-2018

- Configuring, regulating and troubleshooting a network of over 5000 devices (Cisco and Aruba routers, controllers, switches, ASA 5505 and 5525 firewalls, F5 ATM (BIG-IP), Multiplexers, Voice Switches, and Wireless Access Points)
- Working with Network Engineers in implementing both major and minor network layout changes, like implementing new devices, rerouting links, discontinuing old devices, ensuring connectivity all throughout the changes
- Resolving connectivity issues for end-users through troubleshooting and implementing solutions
- Coordinating with vendors for hardware maintenance and upgrades, negotiating favorable terms to meet budgetary constraints while maintaining system reliability

GRADUATE TEACHING ASSISTANT, UNIVERSITY OF MARYLAND – 2016-2017

- Assisting students with coursework and evaluated their performances in the Operations Research course
- Grading assignments, proctored tests and providing feedback according to university standards
- Managing a classroom of diverse learners, implementing differentiated instruction strategies to meet individual student needs

EDUCATION

TEMPLE UNIVERSITY, PHILADELPHIA, PA – PHD IN COMPUTER SCIENCE, 2026 - PRESENT

TEMPLE UNIVERSITY, PHILADELPHIA, PA – MS IN COMPUTER SCIENCE, 2024

UNIVERSITY OF MARYLAND, COLLEGE PARK, MD – MS IN TELECOMMUNICATIONS, 2017

TECHNO INDIA, KOLKATA, INDIA – BTECH IN ELECTRONICS & COMMUNICATIONS ENGG, 2013

SKILLS

LLMs, Small LMs, Explainable AI, Hallucinations & Guardrails in LLMs, Data Mining, Network Protocols

PUBLICATIONS

Biswas, S., Shafei, H. A., & Tan, C. C. (2025, March). Structured insight generation from mental health counseling reviews: A GPT prompt engineering enhanced approach. In **Proceedings of the AAAI Workshop on Knowledge Graphs for Personalized Public Health**.

Lan, F., **Biswas, S.**, Gui, B., Wu, J., & Wang, A. (2022, July). Design and Implementation of a Strong Representation System for Network Policies. In **2022 International Conference on Computer Communications and Networks (ICCCN)** (pp. 1-10). IEEE.

AWARDS

Outstanding Graduate Teaching Assistant

PROJECTS

- Capstone Project: Exploring the Synergy Between Database Architectures and Prompt Engineering for Optimized LLM Responses
- Research Project: Design and Implementation of a Strong Representation System for Network Policies, ICCN 2022
- Other Project: Trait Prediction using Deep Learning
- Other Project: A Comparison of Various Forecasting Models in Predicting Indian Rainfall from Spatio-temporal Data
- Other Project: Virtual Assistants in Emergency Response Systems