Ashfak Md Shibli

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EDUCATION

- **Master of Science, Computer Science** Sep 2022 - Aug 2024
  GPA: 4.00/4.00. *New Jersey Institute of Technology + Tennessee Technological University*

- **Bachelor of Science in Computer Science and Engineering** Mar 2013 - Nov 2017
  GPA: 3.53/4.00, *Chittagong University of Engineering and Technology*

EXPERIENCE

- **Athlete Den** *(early stage startup)* New York, USA
  Software Engineer ***May 2024 - Current***, *Intern: May 2023 - Aug 2023*

  - **AI Model Architecture & Implementation**: Architected a Python-based back-end system that has automated Machine Learning (ML) pipelines using the Google Cloud Platform (Cloud Storage, Compute Engine, Cloud Run). The ML pipeline was integrated into the Label Studio API for my model training and data labeling workflows. Implemented and optimized various computer vision models (CNN architecture) for the detection of real-time sports activities as well as performance analytics in real-time.

  - **Mobile AI Optimization**: Developed scalable mobile AI systems by optimizing the performance of the AI models for constrained resources on mobile platforms. Created an efficient data processing pipeline for data collection/processing as well as model compression techniques and real-time inference optimizations for mobile applications. As a result of these systematic optimizations achieved considerable improvements to the performance of AI models when deployed on mobile hardware.

  - **Data Infrastructure & Analytics**: Designed a complete management system for a large sports dataset to integrate computer vision data with gameplay parameters and device metrics. Implemented user data synchronization and profile management via a Firebase Database for real-time analytics, crash reporting and performance monitoring systems for mobile AI applications.

  - **Research & Development Leadership**: Led technical innovation initiatives and prepared patent application for AI-driven sports performance analysis systems. Collaborated with CEO on technical and business strategy decisions, conducted candidate interviews, and contributed to commercialization planning.

- **Research Collaborations** Remote Collaboration
  Voluntary Industry Research Collaborator *July 2024 - Current*

  - **Speed Lab, Florida Atlantic University**: Collaborating with researchers (with Faculty and leading PhD students) investigating and experimenting adversarial attacks (PGD attack for example) on LLM, VLMs. Conducted systematic empirical analysis of VLM's performance on perturbed data examining prompt engineering techniques for security threat generation. Curating an automated dataset pipeline: for automated vehicles and designed system for VLM-generated content evaluation with attack scenarios.

  - **University of Tennessee Chattanooga**: Collaborating with faculty on vision-language model research, focusing on iterative evaluation frameworks for document understanding. Developed comprehensive analytical platform for studying generator-evaluator feedback loops in multimodal AI systems. Contributed to research on adversarial exploitation of iterative refinement processes and quality improvement patterns across document types.

- **Tennessee Technological University** Tennessee, USA
  Graduate Teaching Assistant *Aug 2023 - May 2024*

  - **SMS Phishing Detection: Security Research**: Developed a fully functional Python-based SMS threat analysis system which uses BERT transformers, word embeddings, N-Gram analysis, vectorization techniques, and Pearson correlation analysis to analyze SMS messages. The developed predictive models achieved an accuracy of approximately 92% for SMS threat classification and I also developed an explainable AI scoring system (0-100 scale) with customizable detection thresholds.

  - **Advanced Pattern Recognition & Statistical Modeling**: Developed multi-step analytical frameworks using Ratcliff's pattern recognition algorithm and statistical modeling techniques in order to develop behaviorial patterns and threat indicators. Curated comprehensive dataset that include URLs, VirusTotal security scores, and large language model responses in order to perform advanced predictive analysis and threat intelligence.

- **Data Visualization & Research Communication**: Created interactive graph-based visualization systems using matplotlib and D3.js for complex threat analysis and intelligence reporting. I developed clear, actionable research reports with advanced visualizations using NetworkX and Graphviz, and used these results to improve detection systems through rigorous statistical analysis.
    - **Academic Leadership & Mentoring**: Managed laboratory sessions and analyzed student learning for over 100 students per semester in multiple computer science courses (CSC 2310, CSC 1310). I designed programming assignments with the use of data driven methods, analyzed student performance, and mentored students with the use of evidence-based instructional methodologies.

- **New Jersey Institute of Technology** — New Jersey, USA
Graduate Research and Teaching Assistant — *Sep 2022 - May 2023*
    - **Static Analysis Research**: Contributed to collaborative project focusing on precise static analysis of event-based systems in Android applications. Developed automated analysis tools and generated comprehensive technical reports documenting research outcomes for distributed computing systems.
    - **Healthcare Application Security Research**: Developed automated Protected Health Information (PHI) leakage detection systems using Python and advanced machine learning techniques. Implemented comprehensive STRIDE threat modeling framework for healthcare data protection, contributing to systematic security analysis protocols for medical applications.

- **Samsung Research** — Dhaka, Bangladesh
Lead Software Engineer — *Jul 2018 - Aug 2022*
    - **Samsung Family Hub - Smart Refrigerator**: Designed layered secure API systems to enable cloud data communication and local data management. Built robust systems utilizing a multi-threaded approach to process data and protect data integrity in NoSQL database systems which resulted in a reduction of system crashes by 99% via thread optimizations. Used Apriori algorithm to develop predictive food management recommendation system and implemented it as part of smart shopping recommendations.
    - **Samsung Galaxy Buds - Audio Device**: Led development of Windows desktop applications with secure Bluetooth communication protocols and automated firmware update systems. Implemented audio optimization features and maintained systematic testing coverage for audio processing components.
    - **Automated Testing Infrastructure**: Engineered comprehensive automated testing framework using WinAppDriver for Samsung Notes desktop application. Implemented systematic test automation practices covering unit tests, integration tests, and end-to-end testing scenarios. Developed extensive logging systems capturing performance metrics, I/O anomalies, and security vulnerability indicators enabling proactive issue detection.
    - **Research & Innovation Leadership**: Developed a technical knowledge base with 120+ documented articles and best practices. Also led patent development initiatives for AR/VR communication systems and emergency response technologies. Coordinated multi-platform development teams and evaluated patent applications across Samsung's global product ecosystem.

TECHNICAL SKILLS

- **Programming Languages**: Python, Swift (iOS), Dart (Flutter), JavaScript, C#, C++, SQL, NoSQL, Shell Scripting

- **Machine Learning**: PyTorch, TensorFlow, scikit-learn, BERT, CNN, DNN

- **Data Science & Analytics**: pandas, NumPy, NLTK, NetworkX, Statistical Modeling, Pattern Recognition

- **Visualization & Reporting**: Matplotlib, Seaborn, Plotly, Graphviz, Firebase Analytics, D3.js

- **Cloud & Database Platforms**: Google Cloud Platform, Firebase, MySQL, NoSQL, REST APIs

- **Development Tools**: Git, CI/CD, Visual Studio Code, Xcode, Docker, XCTest/pytest, JIRA, Label Studio, Selenium, Carla

RESEARCH PUBLICATIONS

- **Under Review: Shibli, A. M.**, Imteaj, A., et al., "Secure Yet Fragile: Adversarial Vulnerabilities of Federated Vision-Language Models in Medical AI," *Under review at Nature Scientific Reports*, January 2026.

- **Under Review: Shibli, A. M.**, et al., "IterVLM: An Iterative Evaluation Framework for Vision-Language Models," *Under review*, January 2026.

- Sanjari, S. M., **Shibli, A. M.**, Mia, M., Gupta, M., & Pritom, M. M. A., "SmishViz: Graph-based Visualization System for Monitoring and Characterizing Ongoing Smishing Threats," *ACM Conference on Data and Application Security and Privacy (CODASPY)*, June 2025. **Acceptance rate: 20.9%** [Paper]

- **Shibli, A. M.**, Pritom, M. M. A. and Gupta, M., "AbuseGPT: Abuse of Generative AI ChatBots to Create Smishing Campaigns," *IEEE 12th International Symposium on Digital Forensics and Security (ISDFS)*, San Antonio, TX, 2024. [Paper]

- **Shibli, A. M.** and Pritom, M. M. A., "Use of LLM-based Generative AI Chatbots for Smishing Attacks and Defenses," *IEEE Symposium on Security and Privacy (S&P) Poster*, San Francisco, CA, 2024. [Poster]

- **Shibli, A. M.**, Hoque, M. M., Alam, L., "Developing a Vision-Based Driving Assistance System," *Springer Advances in Intelligent Systems and Computing*, vol. 755, 2019. [Paper]

- Hossain, S. M. M., Banik, S., Banik, T. and **Shibli, A. M.**, "Survey on Security Attacks in Connected and Autonomous Vehicular Systems," *IEEE International Conference on Computing (ICOCO)*, Malaysia, 2023. [Paper]

- **Under Review:** Pritom, M. M. A., **Shibli, A. M.**, Hossain, S. M. M., Mia, M., & Sanjari, S. M., "Short Message Service (SMS) Phishing: Attack Characterization, Defense Landscape, and Future Directions" *Under review at IEEE Access Journal*, December 2025.

Awards & Leadership

- **Research Excellence**: Eminence Award 2025 for Master of Science Best Paper from Tennessee Technological University College of Engineering. Published in premier conferences including IEEE S&P and ACM CODASPY

- **Patent Application**: "System, Apparatus, and Method for Analyzing Sports Performance Using Multi-Media Content" - Patent-pending AI-driven analytics platform for performance data collection and analysis using computer vision and machine learning techniques.

- **Professional Recognition**: Employee of the year 2025 at Athlete Den, Samsung R&D ICON of the Month (May 2019, Nov 2020), Outstanding Collaborator (2021), Best Paper Award at International Conference on Emerging Technologies in Data Mining and Information Security (Feb 2018).

- **Research Mentoring**: Currently mentoring two graduate students at Florida Atlantic University as industry collaborator, focusing on AI applications in mobile computing and cybersecurity research methodologies.

Personal Problem Solving Projects

- **AI Course Advisor (GitHub) (Demo)**: Utilizing the Google Gemini API, I created a fully functional web application which provides an intelligent academic advising experience. Designed the architecture of this system which analyzes course database and user preference information to provide users with AI-powered course recommendation options utilizing Flask as the back-end of my project with an automated CI/CD deployment pipeline directly from GitHub to Heroku.

- **Generalized Price Tracker (GitHub)(Demo)**: Developed an intelligent e-commerce monitoring system using the Anthropic Claude API for generalized web scraping. Designed a solution which is capable of parsing the complete content of a web page and automatically detecting price changes across any website without needing DOM specific code to create LLM powered automation for universal web data extraction.

Community Engagement

- **STEM Education Outreach**: Managed practice sessions for First Lego League Robotics competition to support middle school student teams at Tennessee Tech (February 2024). Provided educational exhibitions and showed examples of STEM program and AI learning opportunities for K-12 students at University of Tennessee Chattanooga College of Engineering Open House (February 2025).