Arnab Dev

+1 469 947 4379 | official.arnabdev@gmail.com | Portfolio: arnabdev.netlify.app | Linkedin: in/arnabdev | Github: arnabdev1

EDUCATION

The University of Texas at Dallas, Richardson, TX **Expected Graduation: May 2027**
Bachelor of Science, Computer Science **GPA: 3.9**

- Honors College, Dean's List recipient, Full-Tuition AES scholarship recipient.

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, TypeScript, Java, SQL (MySQL, PostgreSQL), NoSQL (MongoDB)
Libraries and Frameworks: HTML, CSS (Tailwind, SCSS, Bootstrap), React, Next.js, Node.js, Flask, Spring Boot, Spring AI
Development Tools: Git, Linux, Bash, Postman, Docker, Vercel, AWS, Figma, Scikit-learn

WORK EXPERIENCE

University of Texas at Dallas, Richardson, Texas October 2024 – Present
Research Assistant, Undergraduate Research Apprenticeship Program

- Working on **dynamic analysis and fuzzing** at Dr. Shiyi Wei's lab.
- Submitted 1 paper at **ICSE 2025** and working on my second project.

Bondstein Technologies Limited, Dhaka, Bangladesh June 2024 – August 2024
Software Developer Intern

- Worked on building and optimizing front-end interfaces. Used **React, Next.JS, Node.JS, HTML, and CSS** (Tailwind).
- Optimized front-end interface using memorization (React.memo) to reduce unnecessary re-renders, resulting in a 30% reduction in time taken to render components.
- Managed CI/CD pipelines and version control in GitLab, driving collaboration under constraints.

Edification Coaching Center, Dhaka, Bangladesh October 2022 – December 2023
Computer Science Teaching Assistant

PROJECTS

Sprinklify October 2025
Tools Used: React, Spring Boot, Flask, Python, OpenCV, Gemini API, MATLAB, MongoDB, Arduino

- **Built an AI-powered smart irrigation system** that converts natural language or drone footage into optimized sprinkler rotation & flow patterns, minimizing water waste through NLP, computer vision, and optimization.
- **Developed full-stack architecture** with real-time hardware simulation, an interactive React dashboard, dual backends for AI & ML processing, and integrations with Gemini and MATLAB for advanced analytics.

Variability Aware Fuzzer October 2024-June 2025
Tools Used: C, Rust, Python, Docker, Bash

- Assisted in the invention of a **run-time variability-aware fuzzer** using C, Rust, and Python to test configurable C programs to detect vulnerabilities.
- Developed a configuration and input co-execution algorithm to analyze and execute programs at 4000 executions per second.
- Discovered and fixed multiple security vulnerabilities in popular open-source C programs, including ffmpeg, xmllint, and tiff2pdf.

HydraWatch (HACK UTD) November 2024
Tools Used: Flask, Next.js, Python, scikit-learn

- A web app that can visualize gas pipeline data through an interactive dashboard for detection and prediction of hydrate formation based on current gas injection metrics with a **95% accurate regression model** for real-time predictions.

ORGANIZATIONS

AIMD UTD, Developer October 2024 – December 2024
Next Initiative Foundation, Founder, President August 2020 – August 2024

- Recruited and led **300+ volunteers, 4000+ participants.** Featured on national television twice.

ESS STEM Club, President October 2021 – January 2024

- Leader during growth from 50 members to 200+ members, making it the school's largest academic club.

ACHIEVEMENTS

Top 25 across the Nation, Bangladesh Olympiad in Informatics February 2024, February 2023