Abhisek Kumar Jha

Arlington, TX • abhisekjha2020@gmail.com • 817.239.4175 • LinkedIn • GitHub

Motivated Computer Science Student with 1.5 years of experience in backend development using Java, C, and Python. Adept at problem-solving and collaboration, with a keen interest in emerging technologies. Passionate about crafting high-quality software, effective communicator, and dedicated mentor fostering technical excellence in innovative projects.

EXPERIENCE

University of Texas, Arlington. - Arlington, Texas. September 2023 - Present

National Science Foundation (NSF) Convergence Accelerator Track G: "Combating Vulnerability and Unawareness in 5G Network Security: Signaling and Full-Stack Approach"

Engaged in a pivotal NSF-funded project focused on enhancing the security of 5G networks, particularly in contexts vulnerable to sophisticated adversarial threats and electronic warfare scenarios. The project aims to develop robust security solutions for DoD applications, leveraging academic and industry research to safeguard 5G infrastructure.

Research Assistant under Dr. Remi Chou (Co-Principal Investigator)

- **Task 2.3: Multipath Communication**:
  - Developed a cutting-edge encoding and decoding algorithm to reinforce the resilience of 5G networks against multipath interference and potential quantum computing threats.
  - Created a comprehensive Python simulation demonstrating the efficacy of the algorithm in real-world scenarios, ensuring data integrity and security in complex communication environments.
- **Algorithm Development and Simulation:**
  - Collaborated closely with a diverse team of researchers from academia, and industry to consolidate ongoing research efforts in 5G security.
  - Contributed to the theoretical and experimental aspects of the project, ensuring a holistic approach to 5G security challenges.

SKILLS

Domains: Natural Language Processing, Conversational AI, Quantum Computing
Programming Languages: Java, Python, C/C++, C#, Q#
Databases: MongoDB, MySQL
Infrastructure: Google Cloud Platform, Kubernetes, Docker, GithubCI, Jenkins
Others: Data Structures, Algorithms, Microsoft Power BI, Object Oriented Programming

PROJECTS

- Accomplished streamlined database operations as measured by a significant reduction in data management time and errors, by developing a robust CRUD-focused API integrated with Jenkins via GitHub webhooks, facilitating automated deployments and updates.
- Developed a portable index-allocated file system with 226 bytes of drive space. Implemented commands for creating, listing, inserting, retrieving, reading, deleting, undeleting files, as well as managing attributes, encryption, and quitting. Supported files up to 220 bytes, up to 256 files, and filenames up to 64 characters. Utilized an index allocation scheme with a block size of 1024 bytes and support for 65536 blocks. Designed a single-level directory structure without subdirectories. Efficiently managed free nodes and blocks. Enabled non-contiguous file storage.
- Accomplished custom implementation of malloc and free functions in C, providing heap management for user processes. Implemented splitting and coalescing of free blocks, added Next Fit, Worst Fit, and Best Fit strategies. Tracked events and statistics, including successful calls, block reuse, splitting, coalescing, and more. Incorporated realloc and calloc. Conducted benchmarks against malloc (), considering execution time, splits, heap growth, fragmentation, and max heap size.
- Led the design and development of a narrative-driven 2D RPG for mobile platforms using a structured waterfall model approach. This single-player adventure unfolds through intricate puzzle-solving across meadow, cabin, and forest environments. Directed each phase of development, from initial concept to final release, ensuring thorough completion before proceeding to subsequent stages. Employed StarUML for initial game structuring, followed by the sequential development of game mechanics in Unity, and the creation of custom graphics with ibis Paint and Luna Pic. Orchestrated the algorithmic puzzle design using C#, crafted an intuitive UI/UX, and wove a compelling story that evolves with player interaction and achievements. Focused on targeting Android 14 to deliver a

personalized and immersive gaming experience.

EDUCATION

BS, Computer Science, The University of Texas at Arlington, August 2021 - Arlington, Texas - 3.86/4.0
Key Courses: Artificial Intelligence, Natural Language Processing, Data Structures and Algorithms, Operating Systems, Information Security, Computer Networks, System Design