Tianqing Feng

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Applying for PhD position in machine learning and related fields.

Education

Louisiana State University(LSU), Baton Rouge, LA — Aug 2019 - May 2023

B.S. in Computer Engineering, Minor in Computer Science — **GPA**:3.29/4.00

Honors:

Dean's List 2020, Academics Scholars Non-Resident Award, Texas Tiger Scholarship

Employment and Research Experience

Center for Precision Medicine, UT Health Science Center San Antonio — Jul 2023 - Present

Data Engineer — *PI: Kumar Sharma*

Bio-Sample Database

***Database Development*:**

- Developed a SQL-based bio-sample database for ultra-low temperature freezers (-80°C), accommodating up to 600,000 samples. This significantly reduced unnecessary access, enhancing sample preservation and storage efficiency.

***Application Development*:**

- Created a user-friendly, multi-platform application to optimize data recording and import, improving operational efficiency and user interaction.

Training & Integration:

- Provided comprehensive training to lab staff, ensuring effective use of the database and application, with an emphasis on seamless workflow integration.

LisBiotech LLC, San Antonio — Jul 2023 - Present

IT Consultant, Contractor

Data Management Consultation

- Advised on strategies to enhance data management, focusing on improving accuracy, operational efficiency, and processing speed.

PCR Equipment Data Management Software Development

- Developed and engineered a comprehensive software solution for managing PCR equipment data, featuring automated upload to Google Cloud. Integrated Google API to enhance data handling and connectivity with Google services.

Michoud Assembly Facility, Lockheed Martin Space(partnership with LSU) — Aug 2022 - June 2023

Student Lead/Liaison Engineer — *Advisors: Mark Breen, Shuangqing Wei*

Autoclave Data Extraction

Developed data extraction device and analysis application for industrial autoclave, PLC and control PC due to data loss with SDLC in mind.

Data Extraction and Decryption:

- Led the team in designing a network tap for effective data capture in switch-based network environments.

- Complete the extraction and decryption of communication data packets between an autoclave PLC and its control PC.

Autoclave Emulation and Monitoring Device:

- Guided the development of a sophisticated autoclave emulator in Python for off-site testing.
- Developed an automated HID device utilizing Raspberry Pi 4B, enabling data interception and monitoring. This system also facilitated secure data backup, contributing to enhanced data integrity and consistent operational continuity.

Cure Validation Application

- Engineered a Windows-based cure validation application using C# (.Net) and WinForms, dramatically reducing analysis time from one week to under 10 minutes, while ensuring adherence to established guidelines.
- Optimized application performance through asynchronous programming, parallelized data processing, and graphical improvements like double buffering and subsampling for large data graphing.

Computer Architecture Lab, Louisiana State University Jun 2021 - July 2023

Undergraduate Research Assistant *Advisor: Lu Peng*

GeauxTrace Contact Tracing App

Scalable, privacy-protecting contact tracing platform using blockchain technology to store proofs of physical contact detected via Bluetooth, without compromising personal data.

Mobile Application

- Developed the mobile contact tracing application, leveraging Bluetooth Low Energy (BLE) for effective contact detection. Ensured high compatibility across various devices while maintaining a strong focus on user privacy through minimal personal data requirements.
- Integrated essential features including secure local data storage, notification system and blockchain wallet component for generating verifiable proof of contact, thereby enhancing the app's security and reliability.
- Designed a user-friendly and intuitive interface, minimizing user input and promoting ease of use.

Blockchain Framework:

- Assisted in implementing a private Ethereum blockchain for GeauxTrace using Geth and Proof of Authority, emphasizing smart contract compatibility, privacy, operational efficiency, and enhanced security.

Server and Contact Tracing Algorithm:

- Contributed to overseeing node servers that constructs a contact back-tracing graph, and handles notifications. The system's contact tracing algorithm is optimized for efficiently identifying potential exposures.

Publications

T. Lu, F. Qi, J. Ner, **T. Feng**, B. Cunningham and L. Peng, "*GeauxTrace: A Scalable Privacy-Protecting Contact Tracing App Design Using Blockchain*". In Proceedings of 2022 IEEE/ACM International Conference on Big Data Computing, Applications and Technologies (BDCAT), December, 2022

Academic Projects

UI Project | Putt Putt Web Oct 2023

- Assisted in designing a cross-platform online mini-golf game, ensuring compatibility and engaging gameplay.

Microprocessor Interfacing Project | Internal Combustion Engine Controller Apr 2022

- Engineered an Arduino-based program for precise ignition timing control in a six-cylinder engine across 100-8000 RPM, featuring a live RPM display and a dynamic LED visualization of spark plug sequences on a breadboard.

Computer Vision Project | Chess Board PGN Conversion Mar 2022

- Collaborated with a team to convert chess game live videos into Portable Game Notation (PGN), utilizing the YOLOv4(convolutional neural network) object detection model for rapid, precise, and real-time conversion.

Microprocessor System Project | Four-way Traffic Light Nov 2021

- Programmed a Arduino board for a 12-LED network across four traffic lights, focusing on safety and efficiency, with precise timing and synchronization for optimal traffic flow and accident prevention.

PCB Lab Project | USB Flashlight Oct 2021

- Developed a USB flashlight from schematic design to final assembly, selecting components for reliability, designing the PCB layout with Eagle PCB, and manufacturing it via photochemical etching, culminating in precise soldering and thorough performance testing.

Additional Skills

Programing Languages:

Python, Swift, C#, .Net, C++, C Matlab, Assembly(Arm,MIPS,RISC-V), Markdown, LateX, Verilog/VHDL, json.

Technology:

Firebase(Auth), MVC, SwiftUI,UIKit, CoreBluetooth, CoreData, BgTasks, Smart Contract, Wireshark, SBC(Raspberry Pi), Arduino, WinForms, Async, Parallelization, Double buffering, Subsampling, Linux/Unix, Git, Postman, YoloV4, Tensorflow, Vivado, PSpice, Google Colab

Related Courses:

Data Structures, Operating Systems, Circuits and Electronics, Digital Logic, Probability, Power, Communications, Microprocessor Systems, Computer Organization, Discrete Structures, Neural Computing, Microprocessor Interfacing, Computer Vision, GPU Programming, Interface Design.

Languages:

English(Fluent/Native), Chinese(Fluent/Native)