

Yuan Zhou

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<https://bitcoin-god.eth.limo> and <https://github.com/yuanzd123> 🔗 [linkedin.com/in/yuan-zhou-tsinghua-university](https://www.linkedin.com/in/yuan-zhou-tsinghua-university)

Tsinghua University (Ranked 12 in the World University Rankings by Times)
University of Denver

Master Computer Science
Bachelor Computer Science

2017-2020
2011-2014

Experienced **Senior Full Stack Developer** with over 7 years in **blockchain, AI and mobile app development**, specializing in **Ethereum and Cosmos** ecosystems. Successfully led projects at **Multiverse Labs**. Holds a Master's in Computer Science from **Tsinghua University** and a notable **IEEE TDSC publication**. Completed a four-year course in three years at the University of Denver. Former U.S. Army service member with an **honorable discharge** and recipient of the 'Sky Master' **battalion awards**.

Multiverse Labs (multiverse.ai / ironhorse.ai) Senior Full Stack Developer 2021.07-now

Demo can be found on my personal site: <https://bitcoin-god.eth.limo> Contact me for some projects' access :)

Iron Horse RAG AI Application: Implemented real-time chat functionality, user authentication, and state management with Redux. Integrated Firebase for backend services, including Firestore for data storage and authentication. Designed modular components and screens for chat, knowledge assembly, admin tools, and file uploads. Collaborated with cloud functions and storage solutions to support scalable, secure, and efficient data handling. This project demonstrates expertise in full-stack mobile development, cloud integration, and modern JavaScript/TypeScript best practices. (**React Native, Flask, Google Oauth, cloud run, storage, and firestore, etc.**)

Singapore TTS Hospital Caregiver AI App: Integration with AWS Bedrock for robust AI model invocation and error handling. Serverless architecture using AWS Lambda, DynamoDB, and API Gateway for cost-effective scalability. Real-time chat history management, sentiment analysis, and user session tracking. Modular TypeScript codebase with comprehensive CLI tools and automated testing. Emphasis on security, reliability, and maintainability in cloud-native environments. This project demonstrates expertise in cloud architecture, serverless computing, and modern AI integration. https://www.youtube.com/watch?v=mYyKA_Hcjcl (**React Native, , AWS lambda, AWS dynamoDB, AWS Bedrock, etc.**)

Cards Collection Game: Coded the entire collectible game TON mini app that allows users to explore, collect, and upgrade digital assets (NFTs) in various themed collections. Players can earn, trade, and upgrade cards through engaging gameplay mechanics, unlocking exclusive rewards along the way on TON net. NFTs are minted on TONnet, and users are created through ton wallet stored in Firestore. (**Firestore, Google Oauth, Google cloud function, React, TON SDK, etc**)

Ethereum Defender: Proactive Cryptocurrency Security Solution: Architected an advanced system to safeguard at-risk Ethereum funds through strategic front-running of malicious actors. Specialized in protecting high-value Ethereum validator accounts (32+ ETH) from unauthorized withdrawals due to compromised private keys. Implemented a rapid-response mechanism to compete with and outpace potential attackers in fund withdrawal scenarios. Successfully secured dozens of Ethereum tokens, significantly mitigating financial losses for account holders. Demonstrated system efficacy through verifiable transaction records, showcasing real-world application and impact. Please contact me for successful case of Ethereum on-chain transaction details. (**Typescript, Python, Solidity, hardhat, Ethereum Full node, lighthouse, geth**)

Advanced Blackjack Game Tracking System: Engineered a high-precision blackjack card tracking system utilizing the state-of-the-art YOLOv10 model. Developed and curated a comprehensive dataset using Python to ensure robust model training. Optimized the model for multi-angle detection, achieving 99% accuracy even with budget-friendly 1080p cameras. Implemented real-time tracking of up to 6 players' actions (stand, hit, split, double) with seamless data storage in SQLite. Designed an analytical framework to evaluate player performance, providing valuable insights for casino profitability. Successfully demonstrated the system's capabilities through a live demo, showcasing its potential for industry application. (**YOLOv10, orientated bounding box, Python, Pytorch, Tensorflow, SQLite, CUDA**)

HODL Decentralized App: Led the design, architecture, and development of Hodlnodes.com and stake.hodlnodes.com, showcasing expertise in full-stack development. Used solidity to write the hodlnodes's smart contract on Ethereum. Pioneered the front-end application of stake.hodlnodes.com using Next.js, creating a responsive and user-friendly interface. Engineered the back-end infrastructure utilizing Google Firestore, including designing a robust and scalable database schema, and ensured efficient hosting on Vercel. Spearheaded the setup and management of a staking device for the Ethereum blockchain, implementing a custom ARM Linux system. Maintained high security and reliability standards by managing the device's firewall and overseeing continuous internet monitoring, ensuring uninterrupted and secure blockchain operations (**Solidity, WalletConnect, Metamask, Next.js, Google cloud functions, scheduler, firestore, etc.**)

Multiverse Meta Land: Developed a cutting-edge, user-friendly platform poised to revolutionize the buying, selling, and trading of virtual land in the metaverse, catering to both individual and business needs. Architecturally designed the entire land sale process, incorporating advanced blockchain technology to ensure secure and transparent transactions. Implemented an intuitive user interface that simplifies complex land acquisition processes, enhancing user engagement and accessibility. This platform not only streamlines the virtual land transaction process but also sets a new standard in the digital real estate market within the metaverse ecosystem.

NFT minting website: Developed a user-centric platform for custom NFT creation and deployment on the Ethereum blockchain, leveraging Solidity for smart contract development and integrating Web3 technologies. Designed an intuitive UI enabling advanced NFT customization and easy contract deployment, while implementing robust security measures and conducting extensive testing to optimize contract efficiency and minimize gas costs. (Solidity, WalletConnect, React, express, ether.js, cloud functions, scheduler, etc.)

U.S. Army *AH-64 Armament / Electrical / Avionic Systems Repairer* 2016.01-2017.01

Honorable discharge. Rank 1st in 18-16 class. Sky Master from 1-222nd Battalion reward 2016-12

arcPI *iOS and Android Engineer* 2014.06-2016.01

Using Java, Swift, Objective-C for native mobile App. PHP, MySQL, mongoDB for the back-end server.



Publications

JNI Global References Are Still Vulnerable: Attacks and Defenses *Co-first Author* 2020.04-2020.04

<https://ieeexplore.ieee.org/document/9095351>

Top-tier journal article (IEEE TDSC - CCF Category A) on the issue of JNI Global Reference resource exhaustion, proposing an automatic vulnerability detection framework and method, and constructing attacks and defenses. Using the automatic detection method, 22 vulnerabilities were found in Android 8.1, and 16 were found in Android 9.

Utilizing these vulnerabilities, various attacks were constructed that can paralyze and indefinitely restart the Android system (including the Android 10). Designed a defense method that can successfully withstand these attacks.

Android Service Layer Testing Framework Based on Automatic Code Generation *First Author* 2020.05-2020.05

<https://wjy.cbpt.cnki.net/WKD2/WebPublication/paperDigest.aspx?paperID=fc0c4d88-74a7-45bb-a308-d20a1c3a5f44>

Interchain Developer Academy - Certification Cosmos SDK Developer 2023.08

<https://badgr.com/public/assertions/1d6EwR06T4qpXIIzV3Ql6w>

Skills

Programming: Solidity, TypeScript, JavaScript, Java, Python, Swift, Kotlin, C, C++, Go, and Rust.

Blockchain and Web3: Truffle, Hardhat, Web3.js, ethers.js, IPFS, Arweave, and Chainlink.

Frameworks & Libraries: ReactJS, NextJS, AngularJS, NodeJS, ExpressJS, jQuery, Bootstrap, Pandas, Jest, Mocha, Ignite CLI, Flask App, PyTest, Cosmos SDK and CosmJS.

Tools & Platforms: Docker, Kubernetes, Kafka, Git, GitHub, SVN, AWS, Google Cloud Platform (OAuth, Cloud functions, Cloud run, Scheduler, Firestore, etc.), Azure Cloud (AI cognitive search, OpenAI API), Parse Server, OpenAI, Langchain, Prometheus, and Grafana

Database: MySQL, NoSQL, MongoDB, Firebase Firestore, Google Cloud storage, GraphQL