

Muhammad Rifki Virziadeili Harisman

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An Informatics Engineering student at Institut Teknologi Bandung with a strong passion for full-stack development, system design, and AI-driven applications. Gained hands-on experience in full-stack development through projects at OCBC Indonesia and ITB, and conducted applied AI research in document verification at MarkAny. Enthusiastic about building secure and scalable systems while continuously honing algorithmic thinking through active participation in competitive programming.

Education

Bachelors in Informatics Engineering

(2022 – Present)

Institut Teknologi Bandung

Relevant Coursework: Covered topics including software architecture design, data structures and algorithms, distributed systems, computer networks, web and mobile development, and DevOps practices for scalable, secure, and data-driven applications.

Publications

R. Aditama, M. Z. Maulana, M. R. V. Harisman, A. Hariyanto, and T. T. D. Susanto, "One-Shot Verification for Paper Certificates in Public Service System," 2024 International Conference on Information Technology Systems and Innovation (ICITSI), Bandung, Indonesia, 2024, pp. 368–373. IEEE. DOI: 10.1109/ICITSI65188.2024.10929167.

Work Experience

OCBC Indonesia

Software Engineer Intern

June 2025 - September 2025

Project : SIGMA (Service Inventory and Gateway Management Automation)

Tech Stack : Java, Spring Boot, Spring Cloud Gateway, React, PostgreSQL, Docker, GitLab CI, Scalar, Consul, JMeter, JUnit

- Developed and enhanced the internal API Gateway by migrating from static YAML routing to dynamic, Consul-based configuration, enabling real-time updates with zero downtime.
- Implemented an automated approval workflow involving SMEs from multiple business units, streamlining the validation and deployment of API Gateway Pods.
- Built a centralized API management portal integrating Swagger UI and automated endpoint registration into Spring Cloud Gateway, enabling unified API registration, documentation, approval, and lifecycle management across all internal services.
- Optimized backend logic and implemented comprehensive testing, achieving over 70% unit and integration test coverage while ensuring reliable performance under 500 concurrent requests with latency below 50 ms.
- Collaborated cross-functionally via GitLab and Jira throughout the development cycle, coordinating daily stand-ups, tracking progress, and delivering the final handover with complete technical documentation, architecture, and production-ready codebase.

Impact: Established a dynamic, fault-tolerant internal API management system that improved deployment efficiency, eliminated manual configuration errors, and enhanced cross-team collaboration in managing enterprise APIs.

Direktorat of Facilities Infrastructure and Information Systems ITB

Software Engineer Intern

April 2025 - June 2025

Project : Dormitory Management System (Asrama ITB)

Tech Stack : Laravel, Vue.js, MySQL, Grafana, Docker

- Maintained and enhanced the dormitory management application used by thousands of students, ensuring stability and uptime during peak registration periods
- Diagnosed and resolved a critical concurrency issue in the payment module that triggered unintended cross-user payments during peak load, enhancing transactional integrity and ensuring financial reliability across the system
- Developed and deployed new user-facing and admin features that improved overall usability and system efficiency
- Refactored and optimized backend business logic for better scalability, maintainability, and performance under high load
- Collaborated cross-functionally with infrastructure and support teams to ensure seamless integration and deployment across environments

Impact: Improved system reliability and performance during high-traffic seasons, enhanced user satisfaction, and prevented further operational issues within the dormitory system.

Programming Laboratory at Informatics ITB

Laboratory Assistant

September 2024 - Present

Course: Algorithm and Programming, Web Application Development, Object Oriented Programming

- Designed and developed practical programming exercises for students in the Programming Algorithms course
- Supervised and monitored laboratory sessions to ensure smooth execution of programming practices
- Evaluated student code submissions and verified code authenticity to detect AI-generated content

- Collaborated with the assistant team to create and refine project specifications for major course assignments

MarkAny GaneshAIT

Research and Development Intern

Jan 2024 - Aug 2024

Focus: Document Verification and Image-based Machine Learning

Tech Stack: Python, OpenCV, QR-Extractor, YOLOv8, OCR Libraries

- Researched and implemented document verification methods involving image enhancement, perspective correction, and OCR-based recognition.
- Developed and trained machine learning models for robust certificate verification using custom datasets.
- Explored and tested novel approaches to improve accuracy and reliability of document authentication systems.
- Published a research paper titled “One-Shot Verification for Paper Certificates in Public Service System.”

Technical Skills

Full-Stack Development

- Frontend: React, Vue, Next, Tailwind CSS, Bootstrap, HTML Templating (Handlebars, EJS), UI Component (Shadcn, MUI), State management (Recoil, Zustand), React Router
- Backend: Spring Boot, NestJS, Node.js, Express.js, Gin, Laravel
- Blockchain & Smart Contract: Ethereum, Alchemy, Metamask, Hardhat, Ether JS
- API & Systems: RESTful API, Spring Cloud Gateway, Consul, Swagger UI, Scalar UI, Kafka (pubs-sub message)
- Testing & Performance: JUnit, JMeter, Postman, Stress & Integration Testing
- Database: PostgreSQL, MySQL, MariaDB, Sqlite, Supabase, Prisma ORM, Cloudinary (Object Storage), IPFS (Pinata/Web3 Storage)
- DevOps: Docker, GitLab CI/CD, Podman, KinD, Vercell, Railway, Azure, Minikube
- Machine Learning: Python, YOLOv8, PaddleOCR, scikit-learn, OpenCV
- Languages: JavaScript, TypeScript, Python, Java, Go, C/C++, C#, Solidity, Haskel, Prolog

Project Experience

- **CertiChain** (Solidity, Ethereum Sepolia, Hardhat, Ethers.js, TypeScript, IPFS, AES, SHA-256, ECDSA, MetaMask, Alchemy) Developed a blockchain-based system for issuing and verifying academic certificates using an immutable on-chain ledger and off-chain encrypted storage. Ensured certificate integrity and authenticity through cryptographic hashing and digital signatures, while enabling public verification without exposing sensitive data.
- **Chiper Text** (Go Gin, React js, Typescript, Go Gorilla, React Router, MUI Component UI, Tailwind CSS, Docker, Postgres) Developed a secure messaging simulation to mitigate Man-in-the-Middle (MITM) attacks by implementing robust **End-to-End Encryption (E2EE)** protocols. Integrated **ECDH** for secure key exchange using **ChaCha20-Poly1305** symmetric encryption, while leveraging **ECDSA** for digital signatures to ensure message confidentiality and integrity.
- **Audio Steganography Web Application** (*React, TypeScript, Golang (Gin), ShadCN UI, Tailwind CSS, Axios*) Developed a full-stack web application implementing **N LSB audio steganography** with optional **Extended Vigenère Cipher encryption**, featuring an interactive interface for embedding and extracting secret messages with real-time playback and PSNR calculation.
- **Spotify-like Purrytify** (*Kotlin, Jetpack Compose, Retrofit, Room, Coil, WorkManager, Google Maps API, ZXing, osmdroid*) Developed an Android music application featuring login, library, playback, downloads, recommendations, QR/URL sharing, notifications, and background services using modern Android architecture.
- **LinkinPurry Pt. 2** (Fastify, React.js, Prisma, Docker, PostgreSQL, Tailwind CSS) Built a LinkedIn-like web platform featuring authentication, profile management, connections, chat, notifications, and dynamic feed system for professional networking simulation.

More projects available on [GitHub](#) and personal [portfolio](#).

Leadership and Activities

- **Founder, Kacapruck.naikLevel** Founded and led a tutoring organization supporting first-year university students; managed team operations, data systems, and strategy to expand academic outreach.
- **Chief Executive, SPS ITB 2023** Directed large-scale campus event operations from planning to execution, overseeing multiple divisions and ensuring project continuity through effective coordination and strategic decision-making.