

Muhammad Haikal Rahman

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SUMMARY

Computer Science graduate with hands-on experience in data engineering and software development. Proven track record in building secure messaging apps, interactive software projects, and data visualization tools. Skilled in Kotlin, Python, Java, Flutter, and Power BI. Results-driven, adaptable, and focused on delivering efficient solutions.

EDUCATION

Bachelor - Computer Science

Mar 2023 - Aug 2023

Universiti Teknologi Mara, Shah Alam

Study Abroad Program in Faculty of Computer Science and Mathematics

- **GPA:** 3.53 / 4.00
- **Relevant Coursework :** Software Engineering; Mobile Programming; Dynamic Web Application development; Programming Interactive System

Bachelor - Computer Science

Aug 2021 - Jan 2025

Universitas Sumatera Utara, Medan

- **GPA:** 3.88 / 4.00
- **Relevant Coursework :** Database; Cryptography; Object Oriented Programming; Data and Information Security; Design and Algorithm Analysis

Internship Experience

Data Engineer Intern

Feb 2024 - Jun 2024

PT Telekomunikasi Selular, Medan

- Designed and developed a Telegram Ticketing Bot, reducing ticket resolution time by 35% and improving operational efficiency by 40%. Built dynamic and interactive data visualization dashboards using Power BI, enabling real-time analytics and enhancing decision-making processes.
- Collaborated with cross-functional teams to identify data requirements, ensuring seamless integration and accuracy in reporting systems.
- Optimized data workflows and implemented scalable solutions to support large datasets and perform complex analyses.

Work Experience

Teaching Assistant

Aug 2024 - Present

Universitas Sumatera Utara Fasilkom-TI, Medan

- Supported teaching in Algorithm and Cryptography courses, assisting in practical sessions, and mentoring students.
- Involved in faculty research, resulting in 1 patent and currently contributing to an ongoing academic publication.
- Prepared teaching materials, delivered tutorials, evaluated assignments, facilitated class discussions, and coordinated with lecturers to achieve learning objectives.

SKILLS

C++, Java, Kotlin, Flutter, Git, MySQL, PHP, JavaScript, HTML/CSS, Full Stack, Power BI

LICENSES & CERTIFICATIONS

Information Technology Specialist in Python

2025

Certiport - wyqyc-48J9

Toefl ITP – 457

2025

LBI FIB UI, Jakarta, Indonesia – 14337665

Prepare for the CompTIA Data+ (DA0 001) Exam	2024
<i>LinkedIn</i> 50fada57bda781b88a6ad187731dfbebdd0398b297186d5fa712547e80a62f38	-
Learn Data Analysis with Python	2023
<i>Dicoding - JLX1WWL6GP72</i>	
Learn to Create Flutter Apps for Beginners	2023
<i>Dicoding - JMZVDMW9NZN9</i>	
Google Data Analytics	2022
<i>Coursera - N33HF88E6V8D</i>	
IBM Full Stack Software Developer	2022
<i>Coursera - W5EVLHSG6QCB</i>	

ORGANIZATIONS

Secretary of Communication and Information Department Oct 2023 – Jul 2024

Ikatan Mahasiswa Prodi S-1 Ilmu Komputer Universitas Sumatera Utara

- Effectively delegated tasks within the department, overseeing their completion and ensuring deadlines were met.
- Optimized social media content strategy, increasing audience engagement by 35% within six months.
- Utilized: Trello, Teamwork, Leadership

Staff of Communication and Information Department Oct 2022 - Jul 2022

Ikatan Mahasiswa Prodi S-1 Ilmu Komputer Universitas Sumatera Utara

- Produced diverse articles and content for the organization's website (<https://imilkom.usu.ac.id>), focusing on computer science topics. Responsibilities included research, writing, and editing to ensure high-quality, engaging material.
- Played a crucial role in utilizing Instagram (@imilkom_usu) to amplify messages, share event information, and actively engage with the audience, fostering a vibrant online community.

Staff of Publication and Documentation Department May 2022 - Aug 2023

Kelompok Studi Pasar Modal Universitas Sumatera Utara

- Develop interesting and informative educational content on Instagram reels (@kspm.usu) which aims to increase public understanding of the stock market, investment principles and financial instruments.

PATENTS

Rahman, Muhammad Haikal & Rachmawati, Dian. 2025. *Image Security Application Using Somsuk-RSA Algorithm*. Indonesian Patent EC00202510303, filed January 21, 2025. Patent granted.

SOFTWARE PROJECTS

Chess Analyzer ([URL Project](#)) Mar 2025

- Developed an advanced web-based chess analysis platform powered by Stockfish.
- Implemented real-time chess engine evaluation, move classification, and accuracy scoring.
- Designed an interactive chessboard with AI-driven move suggestions and strategic insights.
- Integrated support for PGN imports, Chess.com & Lichess.org game analysis, and report saving.
- Utilitized: React.js, Chess.js, Stockfish (WASM), TailwindCSS, Canvas API, Web Workers.

Decodream ([URL Project](#)) Mar 2025

- Designed an IC-blockchain-based platform for transforming dreams into digital art using AI technology.
- Implemented AI-driven dream interpretation, semantic analysis, and personalized insights.
- Integrated AI-generated artwork with NFT minting capabilities, enabling users to create and trade dream-inspired digital assets.
- Utilitized: *Motoko*, JavaScript, SCSS, AI APIs, Stable Diffusion, Internet Computer Protocol.

Ethereal Lens ([URL Project](#))

Jan 2024

- Developed an application that allows users to discreetly capture videos, optimized for Android 14.
- Integrated Background Recording, Overlay Support, and Stealth Mode features to ensure seamless and unobtrusive media capture.
- Achieved compatibility with Android 14, ensuring top performance and stability during background operations.
- Utilized: *Kotlin, Android Studio, Material Design, and Git for collaborative development.*

BMKG Weather Scraping Telegram Bot ([URL Project](#))

Mar 2024

- This Telegram bot provides weather information by scraping the BMKG (Badan Meteorologi, Klimatologi, dan Geofisika) website. Users can interact with the bot to retrieve weather forecasts for various dates and cities across Indonesia.
- Successfully implemented weather forecast retrieval for over 50 cities in Indonesia, achieving real-time accuracy of data scraping.
- Utilized: *Python, BeautifulSoup, Telegram Bot API, and Requests library for efficient web scraping and interaction with users.*

GPA Calculator ([URL Project](#))

Jul 2023

- Developed an app enables users to input courses and grades for GPA calculation while providing visual graphs to track academic progress.
- Utilized: *Java, Android Studio, SQLite.*

The Education Game: "My Arabic Journey" ([URL Project](#))

Jun 2023

- Aiming to teach Arabic vocabulary through interactive lessons. It incorporates pronunciation guidance for each word and includes quizzes to reinforce learning.
- Utilized: *Bootstrap, HTML, JavaScript, Node.js.*

Image Security Application Using Somsuk-RSA Algorithm ([URL Project](#))

Feb 2025

- Developed a computer program application for securing images using the Somsuk-RSA algorithm, providing robust encryption and data protection.
- Officially registered under Indonesian Copyright Law (EC00202510303).
- Utilized: *Python, RSA Encryption, Image Processing.*

Network Quality Support Ticketing Bot ([URL Project](#))

May 2024

- Designed for ticket reporting in support of quality network operations to the SQA (Security Quality Assurance) division.
- Includes features for data visualization to enhance data comprehension and facilitate better decision-making.
- Utilized: *Python, Power BI, Telegram Bot API, Requests.*

Kanban Board Web Application ([URL Project](#))

Jul 2024

- Built using *React* for the frontend, *Node.js* for the backend, and *PostgreSQL* for the database.
- Allows teams to organize tasks, track project progress, and manage workflows efficiently.
- Features real-time synchronization for seamless collaboration.
- Utilized: *React, Node.js, PostgreSQL, WebSockets, Git*

Instant Messaging Security Using AES-256 and RSA CRT Algorithm ([URL Project](#))

Oct 2024

- Secured instant messaging by integrating AES-256 for message encryption and RSA CRT for efficient key exchange.
- Built with a NoSQL database and Node.js backend, delivering a secure real-time communication experience.
- Utilized: *Kotlin, AES-256, RSA CRT, NoSQL, Node.js.*

Implementation of Xception Architecture on CNN for Classification of Indonesian Spices ([URL Project](#))

Mar 2024

- Implemented the Xception Architecture in a Convolutional Neural Network (CNN) to classify Indonesian spices using Kaggle data.
- The model achieved a training and validation accuracy of 87%, highlighting its effectiveness in identifying diverse culinary ingredients.
- Utilized: *Python, Streamlit, Xception CNN, Image Classification.*

Community Service Project: Ma'had Tahfidz Al-Qur'an Kita Bina ([URL Project](#))

Nov 2023

- Developed two web applications for article management and student/staff management.
- Included features for news article publication, attendance tracking, memorization progress monitoring, and user location calibration.
- Utilized: *HTML, CSS, JavaScript, PHP, MySQL*.