MARBELLA

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Final-year Computer Science and Mathematics student with a strong foundation in AI, Data Science, and Software Development. Proven technical expertise through an Application Developer internship at PT Bank Central Asia Tbk (BCA) and an international research publication with IEEE. Experienced in bridging complex mathematical modeling with scalable digital solutions.

EDUCATION

BINUS University | *Bachelor of Computer Science and Mathematics* **| 2021 – 2026**
- **GPA: 3.87 / 4.00**
- **Undergraduate Thesis:** Development of a Casual Exploratory Mobile Game Based on Navier-Stokes Simulation using a Finite Difference Approach
  - Developed **"WHISPAWAY"**, a relaxation mobile game by implementing **Navier-Stokes** fluid dynamics using **Finite Difference Approximation (FDA)**, optimized in **Unity (C#)** for high-performance real-time simulation.
- **Academic Honors & Leadership**:
  - **Student Mentor (2022 – 2023):** Tutored mentee(s) in academic subjects via Google Meet, earning a half-tuition scholarship for academic excellence.
  - **Freshmen Leader & Partner (2022 – 2023):** Guided freshmen through the First Year Program (FYP) and their first two semesters to ensure a smooth transition to university life.

WORK EXPERIENCES

PT Bank Central Asia Tbk (BCA) | *Application Developer Intern* **| Feb 2025 – Aug 2025**
- **Department:** Corporate Planning and Strategy Division (DCSP) – Financial Performance Management (FPM) Developer Team.
- **Engineered** automated functionalities for internal financial analysis applications using **OutSystems**, minimizing manual intervention and accelerating reporting cycles.
- **Streamlined** financial reporting workflows by delivering a digital tool that enhanced data analysis accuracy and capabilities for the internal accounting division.
- **Collaborated** with senior programmers within the **Digital Factory** framework to support large-scale internal application modules and ensure reporting efficiency.

BEF.ID | *Full-Stack Developer (Seasonal)* **| Sept 2024 – Nov 2024**
- **Developed** a business website using **PHP Laravel** and **Bootstrap**, ensuring stable database integration and backend performance for client operations.

BEF.ID | *Chinese Tutor (Seasonal)* **| Jan 2025**
- **Instructed** Mandarin courses via **Zoom** using interactive digital pedagogy to enhance student engagement.

PUBLICATIONS

NLP-Based Automated Essay Scoring Using BERT and Random Forest Algorithm | *IEEE IAICT* **| 2025**
- **Developed** an Automated Essay Scoring (AES) system using **BERT** for feature extraction and **Random Forest** for regression prediction.
- **Achieved** high performance with an **R^2 score of 0.84** and an **MSE score of 13.48** using the Hewlett Foundation dataset.
- **Streamlined** grading objectivity and efficiency through automated text cleaning and hyperparameter tuning.

PROJECTS

- **Real-Time Face Detection (Computer Vision):** Developed a **Python (OpenCV)** model to automate privacy preservation by blurring all faces except the primary subject.
- **Data Security Comparative Analysis:** Evaluated the resilience of **SHA-256, BCrypt, and Argon2**, analyzing the impact of **pepper** on password security using **Python**.
- **SafeNest (Mobile Development):** Engineered a mobile application for real-time neighborhood safety tracking and incident reporting using **Android Studio (Java), Firebase, OSM Library (Map), and News API**.
- **Emergency Siren Classification (Audio Processing):** Modified Deep Learning code into a **Machine Learning** approach to improve classification accuracy for vehicle siren sounds.
- **PKM-KC: Foo-Yoh! (Software Engineering):** Created a multiplatform grocery and recipe application using **React Native (Expo), Supabase, and Figma**.
- **Tweet Emotion Classification (NLP):** Classified text-based emotion labels using **Machine Learning** and **Deep Learning** models in **Python**.
- **Profit Optimization (Applied Math):** Applied the **Gomory Cutting Plane** method and **Integer Programming** to optimize UMKM production profits using **Python** and **POM-QM**.

- **ILKEA's Website (HCI):** Designed and developed a furniture website using **HTML/CSS** with a **Figma** prototype for the user interface.
- **Xiao Ding Dong's Website (Web Programming):** Built a Chinese restaurant website utilizing the **PHP Laravel** framework for backend management.
- **PKM-KC: CredHelper (AI):** Implemented a **Machine Learning** model to classify potential debtor credit scores in **Python**.
- **Computational Biology Classification:** Extracted DNA features to classify plant species in the Sapindaceae family using **Machine Learning (Python)**.
- **Heart Disease Prediction:** Constructed a **Binary Logistic Regression** model in **R** to predict disease presence using 11 predictor variables.

VOLUNTEERS

Dhammavihārī Buddhist Studies | 2021 – Present
- **Facilitator:** Instructed Dhamma for Grade 1 – 3 (Viriya Class, 2021 – 2025) and currently teaching Grade 7 – 8 (Samadhi Class, 2025 – Present).
- **Registration & Among Member:** Handled on-site admission for **Vesak 2024** and **Teacher's Day 2025**, including accompanying Female Sangha(s) during the **Vesak 2024** event.
- **Usher Member:** Managed participant seating and assisted during Sanghadana procedures for **Vesak (2022, 2025)** and **Kathina (2022, 2024)**.
- **Creative & Logistics Member:** Designed game sessions for **Dhammacamp 2024** and coordinated Sanghadana package distribution for **Vesak for Kids 2025**.

ORGANIZATION EXPERIENCES

KMB Dhammavaddhana | 2022 – 2024
- **Organization Manager (Period 34, 2023–2024):** Directed Social Media operations within the Public Relation & Social Service field to manage organizational branding.
  - **Vice Chief Committee:** Spearheaded the **Magha Puja 2023** offline event, ensuring operational excellence and smooth execution.
  - **Manager Representative (Tim Formatur):** Served as an Event Division member to identify and evaluate candidates for the next General Chairman.
  - **Event & Volunteer Roles:** Acted as a Group PIC for **PMB x WP 2023** and served as the Timekeeper for the **DV Teach 2023** onsite event.
- **Activist (Period 33, 2022–2023):** Contributed to the Volunteer & Social Media division under the Public Relation & Social Service field.
  - **Event Division Member:** Managed technical operations as an Operator for **Magha Puja 2022** and **PMB x WP 2022**, including role as Games PIC for the Welcoming Party.

HIMMAT (Mathematics Association) | 2023 – 2024
- **Activist:** Supported the Human Resource Development division in managing internal organizational initiatives.
  - **Secretary & Treasurer:** Controlled budgeting and financial reporting for the **P2M 2023** community service project at an orphanage.
  - **Event Division Member:** Led game sessions and coordinated activities for the association's **Gathering 2022** event.

LICENSES & CERTIFICATIONS
- **Unity Essentials Pathway** – Unity **| Sept 2025**
- **Digital Factory Technical Training (Batch 2)** – BCA Group Digital Innovation **| May 2025**
- **Data Analysis with Python** – Dicoding Indonesia **| Oct 2023**
- **Machine Learning for Beginners** – Dicoding Indonesia **| Oct 2023**
- **Fundamental Data Science** – Dicoding Indonesia **| Sept 2023**
- **SQL Fundamentals** – Dicoding Indonesia **| Sept 2023**
- **Programming with Python** – Dicoding Indonesia **| Sept 2023**

SKILLS
- **Programming Languages:** Python, SQL (Oracle & MySQL), HTML/CSS, R, C#, PHP, Java, JavaScript, C, MATLAB, Octave.
- **Development Frameworks & IDEs:** Unity, OutSystems, VS Code, RStudio, Laravel, Bootstrap, Android Studio, Eclipse, Dev-C++.
- **Data Science & Analysis:** Regular Expressions (Regex), Machine Learning, Deep Learning, Anaconda, Google Colab, Kaggle.
- **Software & Specialized Tools:** Figma, Canva, GeoGebra, Git/GitHub, Docker, ArcGIS Pro, QGIS, POM-QM, Oracle VM VirtualBox, Cisco.
- **Languages:** Indonesian (Native), English (Professional), Chinese/Mandarin (Fluent/Teaching Proficiency).