

MARCEL MARTAWIDJAJA

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Marcel Martawidjaja is an industrial Engineering graduate with experience in supply chain, manufacturing, and system simulation. Throughout his undergraduate life, he has experience working in Denmark and the USA.

EDUCATION LEVEL

European Master in Sustainable System Engineering (EMSSE)

Genoa, Italy

September 2026 Intake

- Selected in one of 30 from 2000 applicants (**1.5% acceptance rate**)
- University of Genoa, Universitat Politècnica de Catalunya, Polytechnic University of Tirana.

BINUS University – Bachelor of Engineering in Industrial and Systems Engineering

Jakarta, Indonesia

Sep 2022 – Sep 2026

- **GPA:** 3.76/4.00
- **Thesis:** Design of Route and Schedule Optimization to Minimize Transportation Cost per Ton for Land Shipments in a Heavy-Vehicle Spare Part Distribution Company

Southern Denmark University – Research Exchange (60 ECTS)

Odense, Denmark

Feb 2025 – Feb 2026

- **Grade:** 4.00/4.00
- Researching 3D printing robotics for the construction industry. Exploring digital twin technologies to improve simulation, monitoring, and maintenance of robotic systems.

Colorado State University – Summer Research Internship

Fort Collins, Colorado, USA

Jun 2025 – Jul 2025

- **Grade:** A (94.4/100)
- Researched demand forecasting in retail supply chains using ML (Random Forest & ARIMA) to develop predictive models, mitigating overstock and stockout issues.

EXPERIENCES

United Tractors | Warehouse Automation Intern

Jakarta, Indonesia

Apr 2026 – Present

- Developing a digital twin version of the warehouse to monitor operational KPIs, improve route planning, and support warehouse optimization initiatives through data-driven analysis.
- Planning and evaluating the implementation of AGVs and drones within the new smart warehouse facility for stocktaking.

COBOD International | R&D Intern

Copenhagen, Denmark

Aug 2025 – Feb 2026

- Successfully migrated and updated ROS2 packages from Humble to Jazzy (LTS), ensuring compatibility and stability for improved robotics system development.
- Implemented the migration from Gazebo Classic to Gazebo Harmonic, enhancing simulation performance and ensuring compatibility with ROS2 Jazzy (LTS).
- Creating a benchmark simulation to compare the digital twin version used.

Southern Denmark University | Student Research Assistant

Odense, Denmark

Feb 2025 – Aug 2025

- **Research Title:** Construction Robotics for Gantry System.
 - Developed a ROS 2-based digital twin for a gantry 3D concrete printer, set up EtherCAT drivers, ran Gazebo simulations, and integrated with Verosim.
 - Enabled real-time data synchronization between the robot and its virtual model, supporting Cobod's automated concrete printing platform.

Arizona State University | Research Fellow

Remote

Sep 2024 – Apr 2025

- **Research Title:** Solar-Powered Smart Aerator Device as a Sustainable Solution for Indonesian Aquaculture Farmers
 - **Led design team** in developing a floating photovoltaic cell for fish farming using Autodesk Inventor, focusing on energy efficiency and environmental durability.
 - Developed a solar-powered smart aerator prototype with an IoT-based water monitoring system, allowing mobile monitoring while reducing operational challenges.

Colorado State University | Research Scholar

Fort Collins, Colorado, USA

Jun 2025 – Jul 2025

- Conducted a research project on demand forecasting in retail supply chain using machine learning algorithms (Random Forest & ARIMA), improving forecast accuracy (**1-MAPE**) by **+24.5 percentage points**.

- Utilized sales transaction data to develop a predictive model addressing stock imbalance issues such as overstock and out of stock scenarios in a retail case study.

Ministry of Education, Culture, Research, and Technology | Research Assistant

Semarang, Indonesia

Jul 2024 – Apr 2025

- Research Title:** Integration of QFD, TRIZ, and AHP for the Development of Ankle Orthosis
 - Designed a **patented** ankle-foot orthosis (AFO) prototype, utilizing advanced methodologies such as Quality Function Deployment (QFD), Theory of Inventive Problem Solving (TRIZ), and Analytical Hierarchy Process (AHP).
 - Collaborated with PT Teknomedika, securing a **\$32,500 grant** from the Indonesian government to develop and refine the prototype.

ORGANIZATIONAL EXPERIENCES

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|--|----------------------------|
| • McKinsey Forward Learner | Present |
| • StudentsCatalyst SNBC6 Peers | Oct 2025 - Present |
| • Institute of Industrial and Systems Engineers Internal Development Staff | Jun 2023 – May 2024 |
| • AIESEC Future Leaders Delegate | Oct 2023 – Jan 2024 |

PUBLICATIONS

- Martawidjaja, M.**, Chainando, N., Simarmata, T. P., & Harito, C. (2025, April). The current development of sustainable materials for a greener footwear industry: A Review. In IOP Conference Series: Earth and Environmental Science (Vol. 1488, No. 1, p. 012008). IOP Publishing.
- Chainando, N., **Martawidjaja, M.**, Darius, R. A., Yahya, L. C., & Syafrudin, M. (2025). Applying 3D Scanning and Printing Techniques to Produce Upper Limb Prostheses: Bibliometric Analysis and Scoping Review. *Prosthesis*, 7(2), 26. <https://doi.org/10.3390/prosthesis7020026>
- Simarmata, T. P., **Martawidjaja, M.**, Harito, C., & Tobing, C. C. (2025). Three-Dimensional Printed Auxetic Insole Orthotics for Flat Foot Patients with Quality Function Development/Theory of Inventive Problem Solving/Analytical Hierarchy Process Methods. *Designs*, 9(1), 15.
- Andhini, G. K., Loekman, T. A., Chandra, R. C., **Martawidjaja, M.**, Chainando, N., Harito, C., & Tan, W. S. (2024, December). Colouring a Digitally Printed Cosmetic Silicone Prosthetic Finger. In *Conference on Innovative Technologies in Intelligent Systems and Industrial Applications* (pp. 566-576). Cham: Springer Nature Switzerland.
- Tan, W. S., Harito, C., Andhini, G. K., **Martawidjaja, M.**, Chainando, N., Syafi'i, M., ... & Syafrudin, M. (2024). Color Modification of Silicone-Based Prosthetic Finger by 3D-Printed Mold. *Prosthesis*, 6(5), 1017-1028.
- Martawidjaja, M.**, Yemima, S., Hananda, N., Kamul, A., Prajitna, S. H., Harito, C., & Susanto, R. (2023). 3D Printing for medical devices: Mini review and bibliometric study. In E3S Web of Conferences (Vol. 426, p. 01077). EDP Sciences.

PATENT

- "Ankle-Foot Orthosis Device with Tilt Indicator for Correcting Ankle Posture". Lucky Saputra, S.T., Christian Harito, S.T., Ph.D., Amir Tjolleng, S.Si., M.Sc., Ph.D., **Marcel Martawidjaja**.

SKILLS AND ACHIEVEMENTS

Languages:

- English (**IELTS Overall Band: 7.5**).
- German (**Level A1.2**).
- Bahasa Indonesia (**Native**).

Achievements:

- Awardee of Erasmus Mundus Joint Masters Degree** Scholarship (EMSSE).
- BINUS Student Research Ambassador 2025
- Awardee of Funded Summer Research Program** to Colorado State University (Summer 2025).
- Awardee of Erasmus+ Fully Funded Scholarship** to Southern Denmark University (Spring 2025+ Autumn 2025).
- 1st Winner** of National EcoScooter Innovation Competition 2024 (December 2024).
- Finalist** BINUS Youthfest paper competition (October 2024).
- Representative** of BINUS University at the National Ergocamp 2024 (August 2024)
- Finalist National** Essay Competition held by Universitas Indonesia. Topic: Nanotechnology (November 2023).

Areas Of Expertise: Simulation, System Optimization, 3D Design, Robotics, Basic Python and C++, PowerBI, IBM SPSS Statistics