Ricco Mathéo

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Education

- **CESI ECOLE D'INGENIEURS, Mauguio** — Mauguio, France
  Software Engineering Student; RNCP40612 — *July. 2021 – October. 2026*

Experience

- **Pro-sima** — Castelnau-le-Lez, France
  Computer engineering intern — *Oct 2024 - Present*
  - **Full-Stack Web and Automation Development**: Development of Automation Programs and Websites at Pro-sima Informatique (Work-Study Program): Recently promoted to continue the role of the former manager. Optimized internal processes through automation, reducing repetitive tasks and improving team productivity. Created custom websites to enhance online visibility and deliver an optimized user experience.
  - **B2B Social Network Development**: Project manager for the creation of a B2B social network: Designed and implemented a collaborative platform enabling companies to connect and communicate easily. Improved inter-company interactions with networking features tailored to professional needs, resulting in increased user engagement and satisfaction.
  - **Call center Dashboard**: Creation of a dashboard that displays the status of a call center, including incoming and outgoing calls, call status, and agent status. Using the API of open source software, WAZO.
  - **Production and development server management**: Apache server management and maintenance.
  - **Tech Stack**: Node.js, PHP, Yii2, MariaDB, Apache, HTML/CSS
- **ARC Constraint Learning Project** — LIRMM / Team COCONUT, France
  Research Software Engineer — *June 2025*
  - **Constraint Learning from Visual Examples**: Developed a system to automatically infer symbolic logical constraints from input/output visual grids (ARC tasks), enabling generalization to unseen problems.
  - **Graph-Based Representation**: Designed graph abstractions of visual grids using node connectivity, color grouping, and neighborhood relationships with NetworkX and NumPy.
  - **Constraint Extraction Engine**: Implemented algorithms to detect geometric, color, size, and positional transformations between input and output graphs, including conditional constraints (IF-rules).
  - **CSP Solver Integration**: Integrated learned constraints into a Constraint Satisfaction Problem using PyCSP3 and the Choco solver to generate valid outputs for unseen test cases.
  - **Visualization and Evaluation Tools**: Built visualization tools to render ARC tasks and graph transformations, enabling qualitative evaluation and debugging of learned constraints.
  - **Technologies**: Python, NetworkX, PyCSP3, Choco Solver, NumPy, Matplotlib, Graph Theory, Constraint Programming (CSP)
- **SmileHome Inc. – SwipeHome Platform** — Tokyo, Japan
  Software Engineer Intern — *Jul 2025 – Oct 2025*
  - **Personalized Persona Generation System**: Designed and implemented a system to generate personalized user personas from an interactive questionnaire, improving housing recommendations for foreign residents in Tokyo.
  - **Serverless Backend with Firebase**: Developed Firebase Cloud Functions to process, structure, and persist user data in Firestore, enabling automated persona generation and real-time data synchronization.
  - **AI Integration for Profile Generation**: Integrated an AI model (Gemini) into backend workflows to transform user responses into structured, human-readable persona profiles.
  - **Cross-Platform Frontend Development**: Built and integrated React Native components to retrieve, display, and visualize generated personas with a clean and intuitive user experience.
  - **Technologies**: React Native · Firebase · Firestore · Cloud Functions · Serverless · AI (Gemini)

Skills

- **Languages**: JavaScript, Python, Java, C++, PHP
- **Technologies**: Node.js, React Native, Firebase, Apache, Yii2, MariaDB, PostgreSQL
- **Concepts**: Serverless, REST APIs, CSP, Graph Theory, Data Structures
- **Languages Spoken**: French (Native), English (TOEIC 815), Japanese (A1)