ROLLAND DORIAN

RIKEN internship summer 2025

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LARGE-SCALE PARALLEL NUMERICAL COMPUTING
OR HIGH PERFORMANCE BIG DATA RESEARCH

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Research and achievements

As a Master's student in engineering at CY Tech, I have cultivated a strong foundation in computational science, numerical analysis, and software development through academic projects and professional experiences.
During my internship at CEA Grenoble, I conducted a detailed performance comparison of Rust and Fortran, analyzing both parallelized and non-parallelized implementations for numerical computing. This work deepened my understanding of parallel programming and high-performance computing, particularly in optimizing efficiency, scalability, and resource management. These skills are directly applicable to RIKEN's research initiatives in large-scale parallel numerical computing.
At CY Tech, I undertook several diverse and challenging projects:

- Facial recognition algorithm: Developed using singular value decomposition and eigenfaces.
- Weather forecasting tool: Built in C with advanced data structures like AVL and ABR trees.
- Finite-state automata implementation: Designed in Python for automation tasks.
- Minesweeper game: Developed in C, applying low-level programming principles.
- Interactive website: Created with HTML, PHP, CSS, JavaScript, and AJAX for enhanced user experience.

These projects were complemented by advanced coursework, equipping me with theoretical and practical expertise in:

- Data exploration and artificial intelligence applications.
- Numerical analysis, probabilities and simulations, and linear optimization.
- Compressive sensing for data compression and analysis.

This combination of research experience, academic projects, and rigorous coursework demonstrates my readiness to contribute meaningfully to RIKEN's pioneering research teams, such as those led by Dr. Imamura and Dr. Sato, whose focus areas align closely with my skills and aspirations.

Sincerely,

Rolland Dorian