

Aloïs Rautureau

COMPUTER SCIENCE STUDENT · ENS RENNES

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EDUCATION

ENS Rennes

MASTER OF COMPUTER SCIENCE

Rennes

August 2023 - Ongoing

ENS Rennes

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Rennes

August 2022 - August 2023

ISTIC - University of Rennes

BACHELOR'S DEGREE IN SOFTWARE ENGINEERING AND ELECTRONICS

Rennes

August 2020 - August 2022

EXPERIENCE

SmolPhone - Research Project

TARAN TEAM

Rennes

September 2023 - Ongoing until May 2024

- **Implementation of a functional prototype of an energy-efficient smartphone.**
- Definition of a communication protocol between a micro-controller and a standard CPU.
- Implementation of a framework to offload heavy computations to the standard CPU while running most of the program's logic on the micro-controller.
- Currently in the process of quantifying energy savings.

FAUST to FPGA - Research Internship

EMERAUDE TEAM

Lyon

May 2023 - August 2023

- **Modification of the existing FAUST compiler to support FPGA targets.**
- Development of a new intermediate representation based on abstract semantic graphs to better support functional-like languages.
- Integration of said intermediate representation in the FAUST compiler.
- Definition and implementation of one optimization pass (circuit retiming).
- Partial implementation of a backend to generate VHDL code from the optimized intermediate representation.

PERSONAL PROJECTS

Chameleon

GENERAL GAME PLAYING FRAMEWORK

Framework

Ongoing

- **A general game playing framework based on Monte-Carlo Tree Search.**
- Aims to bring support for Game Description Language (GDL).

Chameleon Chess

CHESS ENGINE

Software

December 2023

- **Chess engine implementing opponent-model search.**
- State of the art move generation and tree traversal.
- Currently being reimplemented for integration of the Chameleon general game playing framework.

Synesthesia

COMPILER

Domain-Specific Language

October 2021

- **Small domain-specific language to describe visuals from sound signals.**
- The project compiles said domain-specific language to the Vulkan shader language.

SKILLS AND PERSONAL INTERESTS

Languages Rust, Haskell, C/C++, OCaml, Coq, Python, Scala

Topics of interest Programming Language Theory, Optimization, Compilation, Refinement Types, Game Theory, Digital Signal Processing