

ALEXIS LE GLAUNEC

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EDUCATION

Rice University <i>Houston, TX</i>		Jul 2025
PhD in Computer Science	GPA: 4.0/4.0	
Institut Polytechnique de Paris <i>Paris, France</i>		Jul 2021
MS in Computer Science	GPA: 4.0/4.0	

TECHNICAL SKILLS

Programming: Rust, C/C++, Python, Java, CUDA, SQL, Javascript, PHP, Bash, R, HTML

Tools: Git, Docker, Kubernetes, AWS, ZooKeeper, Vivado, Magic, Redis, gdb, TensorFlow

Skills: Unix, APIs, Scripting, Multithreading, Operating Systems, Computer Architecture, Containers, FPGAs

RELEVANT PROJECTS

Defining the Semantics of SystemVerilog Assertion - Rice University, Houston, TX Nov. 2023 - Now

- Explored the SVA specification to formally define its semantics
- Expressed SVA semantics using the usual Temporal Logic Operators

Semantic Regex With Large Language Models - Rice University, Houston, TX Oct. 2023 - Now

- Extended classical regular expressions with **LLM** queries to propose a new formalism called semantic regular expressions
- Designed an algorithm that **minimizes** the number of queries to evaluate a semantic regex

Energy and Memory efficient ASIC for Regex Matching - Rice University, *Houston, TX* Feb - Aug. 2022

- Implemented and benchmarked an ASIC simulator in **Rust**, accelerating by x100 upon the previous **Python** implementation
- Reduced the energy consumption by up to 93% and area by up to 64% with this new **ASIC** design

GPU-Accelerated Multi Pattern Matching - Rice University, *Houston, TX* Feb. 2022 - Dec. 2023

- Implemented a massively parallel algorithm in **Rust** and **C++** for regex matching on GPU with **CUDA**
- Improved upon the state-of-the-art with a 50x speedup over applications for protein search, malware and spam detection
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WORK EXPERIENCE

GPU Research Intern

Thales | *Palaiseau, France* Feb 2021 - Jul 2021

- Overhauled parallelization of a ray tracer on GPU in **Python** by redesigning algorithms and improving data locality; reduced the running time by 20 times from 10 hours to 30 minutes
- Proposed a multi GPUs parallelization by connecting 2 GPUs, achieving a near-perfect 197% speedup

Security Software Intern

Unumkey | *Reims, France* Jun 2019 - Jul 2019

- Engineered a scalable and secured dockerized Capture The Flag platform handling 50+ containers using **Flask** for the frontend, **Docker** and **Kubernetes** for the backend to train programmers on **cybersecurity**
- Awarded a \$600 prize for exceeding the internship's expectations

SELECTED PUBLICATIONS

Z. Wen, L. Kong, **A. Le Glaunec**, K. Mamouras, and K. Yang. *BVAP: Energy and Memory Efficient Automata Processing for Regular Expressions with Bounded Repetitions*, **ASPLOS**, 2024

A. Le Glaunec, L. Kong and K. Mamouras. *Regex Engine Using Bit Vector Automata*, **OOPSLA**, 2023

L. Kong, Q. Yu, A. Chattopadhyay, **A. Le Glaunec**, Y. Huang, K. Mamouras, and K. Yang. *Software-Hardware Codesign for Efficient In-Memory Regular Pattern Matching*, **PLDI**, 2022