

Rand Asswad

Masters Student in
Applied Mathematics & Computer Science

Passionate about mathematics and math-adjacent domains, interested in pursuing a career in research, currently seeking a research internship as of January 2021 for five to six months.

Education

Mathematical Engineering @ INSA Rouen Normandie
September 2014 – August 2020 (pending internship)

French graduate engineering program (Diplôme d'Ingénieur) with focus on applied mathematics and computer science, specialized in IA and Decision-Making.

Theoretical & Applied Computer Science @ Université de Rouen
September 2019 – August 2020

Research-oriented Masters program with focus on algebra and theoretical computer science.

Syrian Scientific Baccalaureate
June 2013

Graduation grade: 92.17%.

Experience

Research Intern @ INRIA Nancy Grand-Est
June – August 2019

Contributed to the «Mind the Gap!» algorithm developed by Pixel team that proposes a robust pipeline for generating hexahedral-dominant meshes from any global parametrization of a tetrahedral mesh.
Proposed and implemented improvements to the pipeline that helped obtain better meshes with less irregularities.

Web Development Intern @ INSA Rouen Normandie
July – September 2017

Established a *Proof of Concept* of a web client of the free software AMC that creates and manages multiple choice questionnaires (MCQ).

Volunteer Translator (French-Arabic) @ CAFDA
July – August 2016

Worked with asylum seekers.

Projects

Music Information Retrieval - Masters Thesis

Research project exploring MIR algorithms for single/multiple pitch estimation and onset detection. Provided a Python API for these algorithms using own implementation and/or external libraries.

The Taquin Game (8-puzzle)

A Prolog implementation of the famous sliding tiles game using graph search algorithms (Greedy, Iterative Deepening DFS, and A*).

AsciiMath to TeX

An ANTLR interpreter of AsciiMath expressions into \LaTeX format.

Floating-point Arithmetics

A C++ implementation of mathematical operations for floating-point numbers (IEEE 754 standard) through bitwise operations using Newton's Algorithm, CORDIC and others.



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Skills

Mathematics & Computer Science Theory

- Functional Analysis
- Control Theory
- Signal Processing
- Numerical Analysis
- Metaheuristics
- Probability, Statistics & Data Analysis
- Combinatorics
- Automata Theory & Language Processing

Programming Languages

- Basic:** Fortran, Matlab/Octave, Prolog, Lisp, Mathematica, Javascript, SQL, C#, PHP.
- Experienced:** bash/shell, C, C++, Java, Python.
- Markup:** \LaTeX / \TeX , HTML, Markdown.

Libraries & Frameworks

- Python:** numpy, scipy, matplotlib.
- Java:** RMI, Swing.
- Lexer & Parser Generators:** Lex/Yacc, GNU Flex/Bison, Antlr4.
- Web dev:** Django, Jekyll.

Software & Tools

- OS:** GNU Linux, MS Windows.
- Version Control:** Git, SVN.
- Image Processing:** GIMP, Adobe Photoshop, Adobe Illustrator, Blender.

Languages

English
French
Arabic (native)
German (learning)

Miscellaneous

Violin (Conservatory of St-Etienne du Rouvray)

Interests

- Cinema & Art
- Camping & Hiking