Rand Asswad

Masters Student in
Applied Mathematics & Computer Science

Passionate about mathematics and math-adjacent domains, interested in persuing a career in research, currently seeking a research internship.

Education

Mathematical Engineering @ INSA Rouen Normandie
September 2014 – August 2019

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 2019

Research-oriented Masters program with focus on preparation for PhD.

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 developped 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 Developement 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 interpretor of AsciiMath expressions into LaTeX format.

Floating-point Arithmatics

A C++ implementation of mathematical operations for floating-point numbers (IEEE 765 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

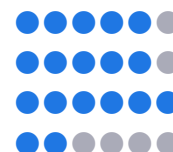▷ `Python:` numpy, scipy, matplotlib.
▷ `Java:` RMI, Swing.
▷ `Lexer & Parser Generators:` Lex/Yacc, GNU Flex/Bison, Antlr4.
▷ `Web dev:` Django, Jekyll.

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