Rand Asswad

Masters Student in
Applied Mathematics & Computer Science

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Passionate about mathematics and math-adjacent domains, interested in persuing a career in research, currently seeking a research internship as of March 2020.

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 Signal Analysis Library
`Masters Thesis (in progress)`

State of the Art of *pitch* and *onset* detection algorithms from a sound signal. A musical scale detection algorithm is also proposed and a python implementation of said algorithms.

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 LaTeXformat.

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.

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, 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

- `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