Hussein A. Houdrouge

+33 6 20 54 56 43 • ✉ hussein.houdrouge@polytechnique.edu

🌐 choudrouge4.github.io/about/ • Date of Birth: 4 March 1995

Education

École Polytechnique (l'X) - Paris-Saclay University   **Paris, France**
Master (M2) - Master Parisian of Research in Computer Science,   *Fall 2017 - Winter 2020*
Master (M1) - Algorithms and Foundations of Programming Languages.

American University of Beirut (AUB)   **Beirut, Lebanon**
Bachelor of Science in Computer Science awarded with Distinction,   *Fall 2014 - Spring 2017*
Minor in Computational Science.

Bazourieh High School   **Bazourieh, Lebanon**
Baccalauréat in Life Science awarded with Distinction.   *2013*

Research Interests

Combinatorial Optimisation, Computational Science, Discrete and Computational Geometry, Graph Theory, and Complexity Theory.

Publications

Subquadratic High-Dimensional Hierarchical Clustering
Joint work with Vincent Cohen-Addad and Amir Abboud. To appear in the proceedings of the conference on Neural Information Processing Systems (NeurIPS) 2019.

Experience

Computer Science Laboratory of the Sorbonne University (LIP6) - RO Team   **Paris, France**
Worked on Design, Analysis, and Implementation of Geometric Approximation Algorithms   *Spring 2019*
(Hierarchical Clustering Algorithms which have applications in Data Science).

LORIA/INRIA Grand Est Research Intern - Alice Team   **Nancy, France**
Worked on Shape Optimisation using Laguerre Diagram (Topological Optimisation).   *Spring 2018*
Final Report: https://choudrouge4.github.io/pdfs/m1_research_Internship_report.pdf

Future Developer Summer Camp - AUB   **Beirut, Lebanon**
Participated as an instructor in teaching Java programming language for school students.   *Summer 2017*

Social Integration of PWD in Mini-Paralympics   **Lebanon**
Worked with in a team on the design and the implantation   *Winter 2017*
of Mini-Paralympics across different areas in Lebanon.

Fundación Promoción Social de la Cultura (FPSC)   **Mount Lebanon**
Planned a social media strategy for Soccer Social School project   *Summer 2016*
(between FPSC, Real Madrid Fondacion, and the Ministry of Education).

Scholarships and Certificates

United States Agency for International Development - USAID   **Beirut, Lebanon**
Awarded full scholarship to study BSc. in Computer Science at   *Fall 2013 - Spring 2017*
the American University of Beirut.

ACM - LCPC The Lebanese Collegiate Programming Contest   **Beirut, Lebanon**
Won the first place (team 1729).   *Fall 2016*

American University of Beirut   **Beirut, Lebanon**
Placed Four times on the Dean's Honour List.   *Fall 2014 - Spring 2017*

AUB-Center of Civic Engagement and Community Service (CCECS)   **Beirut, Lebanon**
Awarded Two certificates for participating in several volunteering activities.   *2013 - 2017*

Projects

Optimising Low Auto-correlation Binary Sequences   **Paris, France**
Implemented and compared the performance of several discrete optimisation   *2019*
Algorithms to find Low Auto-correlation Binary Sequences.
Source Code: https://github.com/CHoudrouge4/osh

Scalable Nearest Neighbour Search Algorithms for High Dimensional Data   **Paris, France**
Implemented and studied the performance of several Data Structures   *2018*
that compute the approximate nearest Neighbour Search in High Dimensional Data.
Source Code: https://github.com/CHoudrouge4/SNNAHDD

Computing Geodesic Distance Based on Heat Flow   **Paris, France**
Implemented a technique based on heat flow to compute the geodesic distance over meshes.   *2017*
The implementation is based on this paper
https://www.cs.cmu.edu/~kmcrane/Projects/HeatMethod/index.html
Source Code: https://github.com/CHoudrouge4/HeatMethodForGeodesicDistance

Imgs   **Beirut, Lebanon**
Implemented an Android mobile image search application based on   *2017*
Machine Learning and Deep Learning techniques for final year project.

Computer Skills

Programming Languages: Java, C, C++11, and Python.
Markup Language: LaTeX and HTML.
Misc: Git, Cmake, Linux - Arch Linux, Ubuntu.
Frameworks and Libraries: NTL, GMP, Hadoop, and MPI(open-MPI).

Languages

English: Fluent
French: Good
Arabic: Native

Volunteering

AUB-Center of civic Engagement and Community Service (CCECS)   **Beirut, Lebanon**
Volunteered in teaching students having difficulties in their schools' courses with Nasma NGO.   *Fall 2013 - Spring 2015*
Volunteered in Beirut Marathon.
Participated in Juice for charity at AUB campus.

USAID, American University of Beirut   **Beirut, Lebanon**
Collected Data about public school for D-rassati Project.   *Fall 2013 - Spring 2015*
Participated in sorting clothes in order to be distributed over Syrian refugee camps.
Volunteered in teaching mathematics to Palestinian students applying to SAT exam.

Interests and Activities

Artistic: Drawing.
Intellectual: Reading "Goodreads account".
Scientific: Mathematics and Physics.
Mind Sports: Competitive Programming.
Sports: Cycling.