

HARSHANA RUNJEET

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SKILLS

- Bsc. Physics (ongoing)
- Python (Advanced), C++ (In progress)
- Research data analysis
- Contribution to SCIL github repository-quantum Tractography project
- Vulgarization of scientific projects
- Version control with Git and code sharing on GitHub
- Bilingual (French/English)
- Medical Imaging
- Qiskit – Quantum Variational Algorithms

PHYSICS AND COMPUTER SCIENCE EXPERIENCE:

Internships:

QUANTUM ALGORITHM DEVELOPER: MITACS GLOBALIK AWARD,

LTS5, ÉCOLE POLYTECHNIQUE DE LAUSANNE (COOP T2, FALL 2024)

- Developing new ideas for implementing Quantum Algorithms to Tractography classical algorithms
- Elaborating research questions on how to scale up QAOA performances on large-scale graphs
- Learning on theoretical aspects of Ising Hamiltonians
- Learning of computational aspects of parametrized optimisation such as evaluation of cost landscapes for a compact set of parameters
- Reflection on how to construct graph with diffusion imaging data
- Scientific presentations and writings of my work

QUANTUM ALGORITHM DEVELOPER (QAOA),

SCIL GROUP, UNIVERSITÉ DE SHERBROOKE (COOP T1, WINTER 2024)

- Usage of scilpy library and Qiskit-IBM library
- Learning of diffusion MRI theory and tractography
- Application of quantum computing in neuroinformatics, focusing on combinatorial problems in graphs (Shortest path, QUBO, Ising Hamiltonian, NP-hard problems)
- Scientific presentations and scientific reports
- Github contribution in automatization of process: from random adjacency matrix to running QAOA and output of the optimal path in graph

RESEARCH ASSISTANT IN SEMICONDUCTOR PHYSICS,

PR.MATHIEU JUAN'S GROUP, QUANTUM INSTITUTE (COOP T0,SUMMER 2023)

- 3D simulation software QTCAD and Gmsh
- Analysis for theoretical and experimental comparative tests
- Learning in semiconductor physics
- Precise writing of scientific reports
- Skills in scientific presentation

Work experience in Computer Science:

TEACHER - ANIMATOR,

ÉCOLES ESTIME, OBNL (2024- ONGOING)

- One-hour animations of Scratch Activities to kids from 6-12 years old
- Vulgarization of informatics concepts like loop, variables and conditions

ADMINISTRATIVE AND LOGISTICS EXPERIENCE :

ADMINISTRATIVE ASSISTANT,

SAATVIK CUISINE VÉGÉ, FAMILY BUSINESS (2018-ONGOING)

- Automation of recipe calculations via Excel
- Financial management and expense tracking
- Invoicing and preparation of payroll sheets
- Proactive stock management
- Research in finance and investments

LIBRARIAN:

BIBLIOTHÈQUE GEORGETTE-LEPAGE, BROSSARD (2020-2022)

- Welcome and assistance to users
- Efficient management of book loans and returns
- Methodical classification according to the Dewey Decimal Classification
- Organised Activities and Animations for kids

EDUCATION :

BACHELOR OF PHYSICS,

UNIVERSITÉ DE SHERBROOKE, SHERBROOKE, QC (AOÛT 2022 – ONGOING)

- Relevant courses: Quantum Mechanics II, Statistical Physics II, Scientific Computing, Medical Physics, Quantum Computing and Information, Experimental Physics II, Riemann Surfaces research etc.
GPA : 3.42/4.0

COLLEGE DIPLOMA IN PURE AND APPLIED SCIENCES,

CEGEP ÉDOUARD-MONTPETIT, LONGUEUIL, QC (2020 – 2022)

- Relevant projects: Creation of a classic video game in HTML and JavaScript
Relevant courses : Introduction to Theoretical Physics, Multivariable Calculus

SCHOLARSHIPS :

- QSciTech Scholarship for a research internship on quantum wells in semiconductors (Internship T0)
- Algo-Lab Scholarship for a quantum computing application internship in quantum tractography (Internship T1)
- MITACS Globalink Research Award Abroad (Internship T2 at EPFL, Switzerland in Signal Processing Laboratory)

PROJECTS AND WRITING:

GitHub : [harshana20011 \(github.com\)](https://github.com/harshana20011) , **Chronicles :** [Harshana Runjeet, auteur sur Le Val-Ouest](#)