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

- Developed new ideas for implementing Quantum Algorithms to Tractography classical algorithms (Python, IBM-Qiskit)
- Elaborated research questions on how to scale up QAOA performances on large-scale graphs
- Learnt on theoretical aspects of Ising Hamiltonians
- Worked with computational aspects of parametrized optimisation such as evaluation of cost landscapes for a compact set of parameters
- Reflected 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)

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

RESEARCH ASSISTANT IN SEMICONDUCTOR PHYSICS,
PR.MATHIEU JUAN'S GROUP, QUANTUM INSTITUTE (COOP T0,SUMMER 2023)

- Programmed 3D simulation software QTCAD and Gmsh with Python
- Analysed theoretical and experimental comparative tests
- Learnt about semiconductor physics
- Wrote scientific reports

Work experience in Computer Science:
TEACHER - ANIMATOR,
ÉCOLES ESTIME, OBNL (2024- ONGOING)

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

ADMINISTRATIVE AND LOGISTICS EXPERIENCE :

ADMINISTRATIVE ASSISTANT,
SAATVIK CUISINE VÉGÉ, FAMILY BUSINESS (2018-ONGOING)

- Automated recipe calculations via Excel
- Managed financial reports and expense tracking lists
- Prepared payroll sheets
- Researched concepts in finance and investments

LIBRARIAN:
BIBLIOTHÈQUE GEORGETTE-LEPAGE, BROSSARD (2020-2022)

- Welcomed and assisted users
- Took care of book loans and returns
- Classified books and documents 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) , Chronicles : Harshana Runjeet, auteur sur Le Val-Ouest