Dietrich Colin

Physics Engineer

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PROFILE

Dual master's graduate in Engineering Physics with two years of lab experience as a research assistant focused on advanced quantum optical systems and simulation. Skilled in quantum physics, photonics, and programming, driven to advance quantum computing technology.

EDUCATION

Research MS in Engineering Physics
Polytechnique Montréal
2022 - 2024 Montreal, Ca
GPA : 4.0/4.0
Coursework : Quantum Optics, Quantum Information, Ultrafast Photonics, A.I.: methods and algorithms, Quantum Field Theory (McGill University).

MS in Engineering Physics
École Polytechnique de Bruxelles
2021 - 2024 Brussels, BE
Honors : Summa Cum Laude
Coursework : Quantum Mechanics II, Laser Physics, Numerical Methods, Plasma Physics, Digital Electronics, Nuclear Physics.

BS in Engineering Physics
École Polytechnique de Bruxelles
2018 - 2021 Brussels, BE
Honors : Magna Cum Laude
Coursework : Quantum/Statistical Physics, Linear Algebra, Semiconductor Physics, Object-oriented programming.

PROJECTS

1st Place at Quantum Hackathon
Pasqal-CMC Quantum Computing Challenge (2024)
- Developed a hybrid quantum-classical algorithm on a neutral atom quantum computer.
- Implemented adiabatic algorithms, QAOA, and variational methods using Pasqal's Pulser library.

Nonlinear Material Optimization
7th Montreal Photonics Networking Event (2023)
- Presented a poster and developed an **open-source Python library** with a genetic algorithm for optimizing quantum properties of crystals.

Ray-tracing Simulations for 5G Networks
École Polytechnique de Bruxelles (2021)
- Developed **C++ ray-tracing software** to analyze electromagnetic wave propagation.

WORK AND ASSOCIATIVE EXPERIENCE

Student Research Assistant
Laboratoire des Fibres Optiques
2022 - 2024 Montreal, Ca
- Conducted full-time research on developing a bright and high-purity source of entangled photons.
- Developed a low noise, ultrafast fiber laser system with EDFA amplification for quantum optics applications.
- Designed and automated complex optical experiments in Python and C (SHG-FROG, balanced homodyne detection, temporal and spectral RIN characterization, etc.).

Laboratory Instructor and Teaching Assistant
Polytechnique Montréal
2023 - 2024 Montreal, Ca
- Led teams and assessed physical engineering projects (***PHS1903***) on pulse oximeters, infrared thermometers, wireless energy transfer systems, and laser sensing.
- Evaluated coursework for Statistical Physics (***PHS2111***) and Biophotonics (***GBM8802***) courses.

Development Cooperation Project
Codepo, CAMESKIN
2021 - 2022 Kinshasa, RDC
- Developed a solar energy monitoring system for rural Congo, programming microcontrollers and a Kalman filter for improved accuracy.
- Implemented an MQTT-based remote monitoring app for real-time data tracking.
- Successfully installed the system in Kinshasa for tracking solar panels and medical storage batteries.

SKILLS

Programmation : Python, C, C++, Java, Swift, HTML, CSS, Javascript, LateX, MATLAB.

Libraries : Numpy, Scipy, Matplotlib, Pandas, PySerial, PyVISA, Qiskit, Pulser.

Software : Github, PowerPoint, Excel, word, Adobe PhotoShop, Inkscape, Mathematica.

Language : Native French, proficient in English and Dutch.

Soft Skills : Documentation, collaborative coding, Organized.

HOBBIES

Running / Trail | Music | Tennis | Backpacking