Photonics Engineer

View Github

View LinkedIn

Download PDF

SKILLS

Personal

- Initiative
- Resourcefulness
- Organization
- Written & Oral Communication
- Collaboration

Programming

Python

MATLAB & Simulink

LaTeX

JavaScript

C#

Software

- Lumerical Mode, FDTD, Device, Interconnect
- Klayout
- GDS Photonics Toolbox (MATLAB)
- NI Visa
- ML Frameworks (Scikit-learn, PyTorch, Pandas)
- Github

Languages

French

English

German

Spanish

JONATHAN CAUCHON

M. Sc. electrical engineering - silicon photonics design

1995/10/18

Quebec City, QC, Canada

jonathan.cauchon@outlook.com

418 932-3026

Self-motivated candidate thriving in stimulating and fast-paced environements. Main qualities involve sense of initiative and a hacker mentality. Interests include device-level design, simulation flow and laboratory automation, and data science.

EDUCATION

M. Sc. Electrical Engineering

Université Laval

05/2019 - Present — Québec, Canada

B. Eng. Engineering Physics

Université Laval

09/2015 - 04/2019 — Québec, Canada

EXPERIENCE

Teaching Assistant - Optoelectronics

Université Laval

Worked on hardware and software for remote operation of laboratory instruments by students due to COVID-19 pandemic.

09/2020 - 12/2020 — Québec, Canada

Research Assistant - Silicon Photonics

Université Laval

05/2018 - 04/2019 — Québec, Canada

Research Intern - Quantum Optics

Friedrich-Alexander Universität

05/2017 - 08/2017 — Erlangen, Germany

PROJECTS

Contra-DC - Master's Thesis Project

Current Version: 7

- A fully-parameterizable contra-directional coupler filter model written in Python. Offers simulation using transfer matrix method, analysis of device performance.
- Featured on SiEPIC Workshop as simulation tool for designers.
- Led to a paper

https://github.com/JonathanCauchon/Contra-DC

Try it Yourself with the simulator widget below!

Contra-DC Simulator +

BraggNet - Machine Learning Project

Current Version: 2

- A PyTorch-based deep learning model trained to reconstruct complex coupled photonic systems from their spectral response.
- Finds use in contra-directional coupler inverse design and fabrication diagnosis.

https://github.com/JonathanCauchon/BraggNet

PUBLICATIONS

Thermally-chirped contra-directional couplers for residue-less, bandwidth-tunable Bragg filters with fabrication error compensation

Jonathan Cauchon, Jonathan St-Yves, Wei Shi.

Optics Letters

https://www.osapublishing.org/ol/abstract.cfm?uri=ol-46-3-532

01/2021

Dual-Band Optical Filters Using Integrated Multimode Bragg Gratings

Jonathan Cauchon, Wei Shi.

OFC

https://www.osapublishing.org/abstract.cfm?uri=OFC-2020-W2A.7

03/2020

EXTRACURRICULAR

Head of Outreach Committee - REPOL

Regroupement des étudiants en photonique et optique de Laval.

Université Laval

Plan and give lab tours to high school students, exhibit in job fairs to promote the field of photonics.

09/2019 - 08/2020 — Québec, Canada

Aviation and Acquisition Team - GAUL

Groupe aérospatial de l'Université Laval

Université Laval

Work on rocket sensor hardware and software.

09/2016 - 09/2017 — Québec, Canada

Student Exchange - German Immersion

Martin-Behaim Gymnasium

Lived with a German family and went to a German high school.

09/2011 - 12/2011 — Nürnberg, Germany

PERSONAL INTERESTS

Traveling

USA, Canada, France, Spain, Netherlands, Portugal, Czech Republic, Malta, Mexico, Cuba, Ecuador, Australia, and counting.

10/1995 - Future — Earth, Milky Way

Programming

Web development, algorithmic trading, web scraping.

01/2018 - Present — Anywhere

Real Estate Investing

Buy & hold rental properties

02/2017 - Present — Anywhere

Sport

Soccer, Crossfit, Snowboard, Wakeboard.