

YUJIA YUAN

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Education

University of Waterloo (GPA 3.93/4, top 5% || GRE 327+5/340+6) Sep. 2017 – May 2022
Electrical Engineering(Physical science option) Waterloo, Ontario

Relevant Coursework

- Quantum Info Processing
- Quantum Mechanics 3
- Theoretical Mechanics
- Statistical Mechanics
- Data Structures
- Intro to OOP
- Digital Computers
- Communication Systems
- Analog Control Systems
- Analog Circuit 2
- Radio Frequency
- Nano Fabrication

Experience

Princeton University Sep 2021 – present
Research assistant of Ytterbium atom experiments, instructed by professor Jeff Thompson Princeton, New Jersey

- Designed the optical pumping scheme for Yb 171

Institute for Quantum Computing Sep 2018 – present
Undergraduate Researcher in Quantum Nanophotonics, instructed by professor Michal Bajcsy Waterloo, Ontario

- **Cost-effectively fabricating gratings for atom cooling, including pushing limits of maskless aligner, constructing Lloyd interferometer and numerical simulations for coils(in progress)**
- **Designed and built a compact system for broadband polarization tomography**
- Numerical simulation for design and optimization of dichroic mirrors based on photonic crystal slabs (in progress)
- Fabricated on-chip fiber splicers based on angled SU8 by UV-lithography.
- Optical pulse system for quantum dot excitation based on CW laser, 70ps electric pulse generator, and fiber EOM
- Implemented MATLAB–Lumerical communication for local morphological optimization after the adjoint design.
- Designed and built an Arduino-controlled motorized stage for making nano-tip optical fibers through acid etching

University of Waterloo May 2018 – Dec 2018
Optical Researcher, instructed by professor Simarjeet Saini Waterloo, Ontario

- Designed and 3-D printed a cuvet holder for detecting Melamine in potable liquid by spectrometer.
- Simulated surface plasma resonance effect of silver with RSoft.

Jannatech Technologies Dec 2017 – April 2018
Software Developer Sudbury, Ontario

- Utilized Android Studio to develop visualized application in Android.
- Developed serial tools in VB.NET for communication between computers and micro-controllers

Conference, projects and publications

Diffraction grating for atom cooling produced with photolithography Ongoing, interim thesis
Yujia Yuan, Paul Anderson, Sreesh Venuturumilli, Michal Bajcsy

A compact setup for broadband polarization tomography Paper on writing
Yujia Yuan, Sreesh Venuturumilli, Michael Li, Sema Kuru, Behrooz Semnani, Paul Anderson, Michal Bajcsy

Generating Single Photon Pulse From a Quantum Dot using a Cointinuous Wave laser and an Electro-Optic Modulator CLEO 2021
Paul Anderson, Divya Bhar, Rubayet Maruf, Jiawei Qiu, Yujia Yuan, Behrooz Semnani, Michael Reimer, Michal Bajcsy

Interfacing quantum dots with laser-cooled atomic ensembles Proc SPIE 117003Z 2021
Divya Bharadwaj, ..., Yujia Yuan, ..., Michal Bajcsy

Technical Skills

Languages: Python, C++, Lumerical, Arduino, Mathematica, MATLAB, LaTeX, QuTip, K-Layout, VB.NET
Industrial Skills: Machining, 3D Modelling, Optics Table, Circuit Design, Blender, Advanced Design System
NanoFab: SEM, AFM, MLA-150, Filmetric, Spincoating, DRIE, Evaporation, Piranha, Proflimeter

Awards

2020, 2021 University of Waterloo President's Research Award(Worth 3000\$, 1500 each)
2021 NSERC Undergraduate Student Research Award(Worth 4500\$)
2018 University of Waterloo President's Scholarship of Distinction(Worth 2500\$)
Dean's list every year