

KAUSTUBH SINHA

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HIGHLIGHTED SKILLS

- 2.5 years of research and analysis experience complemented by completion of a Bachelor's in Engineering and a Masters Thesis in Opto-electronics and Photonics.
- Experience in determination of multivariable analytical correlations and optoelectronic experimental design.
- Visual and Lateral Thinker, multidisciplinary knowledge enhances cognitive diversity for better decisions.
- Demonstrated strong teamwork and leadership skills as Project Team Lead, President and VP of UG research group and various organizations respectively.

TECHNICAL KNOWHOW

Programming: C++, Python, MATLAB, Excel, Verilog, VHDL, C(LINUX), Arduino IDE

Technical: LTSPice, Mentor Graphics, Solid Works, PADS xDX + Layout, Cadence, COMSOL, Photoshop CC, Zemax

Instruments: Raman & FTIR spectrometers, Spectrophotometer, Keithley Sourcemeter, Optical Bench, Photodetectors, Oscilloscopes, Function Generators, 4pt probe system, Glove Box, Fume Hood, Vacuum chamber

Languages: Fluent in English and Hindi, Basic in French.

EDUCATION

MSc in Optoelectronics and Photonics

University of Alberta, Edmonton AB

Sep2018 – Apr2020

Bachelor of Engineering in Electronics and Communication

PES University, Bangalore, India

Sep2013 – Aug2017

RELEVANT EXPERIENCE

Research Assistant

[Xihua Wang Research Group](#), University of Alberta

Sep2018 – Apr2020

- Laser Induced Graphene on Flexible Eco-friendly Polymers
 - Programmed .gcode files (3D printing and laser cutting) for lasing in Fume-hood, used THORlabs photodetector and QE system for beam analysis
 - Maximized graphene yield FTIR and Raman Spectroscopy, Excel, SigmaPlot, SEM
- Transimpedance Amplifier Design for QD multi-junction photodiode at 10MHz
 - Prepared theory and design of a High frequency TIA using opamps as well as a mosfet
 - Simulated and analysed transient and frequency response SPICE simulations
 - PADS xDX Designer and LTSpice
 - Conducted PCB and Layout Design - PADS Layout
- UV/ Vis Nanodrop Spectrophotometer for Biomedical testing (Independent)
 - Designed whole system- diffraction grating, biomaterial collector and isolator and a camera
 - Designed packaging system Solidworks

Semester Projects

Aug2018 – Apr2019

- MATLAB simulation of the characteristics of a TiO₂ Anti-Reflective coating on Corning Glass.
- COMSOL simulation of trapping charged point particles based on electrophoretic and electro-osmotic flow.

Project Lead

UG Research Project, ECE Department, PES University

Aug2016 – Nov2017

- Binocular Indirect Ophthalmoscopy for Diabetic Retinopathy (BIOR Device)
 - Address extant technology issues. Devise and test new designs for an Indirect Ophthalmoscope with live image capture.
 - Designed optical system, integrated a Raspberry Pi held LCD fed with a camera - Solidworks, Python (Embedded Systems)
 - Co-ordinated with a Vitreoretinal Surgeon and managed 3 team members.
 - Created a new highly economic and useful biomedical product.

Research Seminar

ECE Department, PES University

Jan2017 – Nov2017

- An Acoustic communication technique for targeting cancer cells across the Blood-Brain-Barrier

References available upon request

PUBLISHED WORK

Peer Reviewed

Xu, Qiwei & Meng, Lingju & Zeng, Tao & Sinha, Kaustubh & Dick, Carson & Wang, Xihua. (2019). “**On-chip colloidal quantum dot devices with a CMOS compatible architecture for near-infrared light sensing**”. *Optics Letters*.

Conference

Sinha, Kaustubh & Kala, B & Nayaka, Ashraya & Ahmed, Noha. (2017). “**An improvement on binocular indirect ophthalmoscopy for diabetic retinopathy**”. *IEEE Explore*.

ADDITIONAL EXPERIENCE and VOLUNTEER ROLES

President

Sep2019 – Ongoing

Indian Students’ Association, University of Alberta

- Lead a team of 16 executives.
- Co-ordinated with a cohort of leaders.
- Made directorial decisions.

Vice President

Sep2019 – Ongoing

UofA Nanotechnology Group

- Chaired the smallTALK events.
- Managed communications and budget

Treasurer

Apr2016 –Aug2017

IEEE Student Council, PES University

- Budgeted and tracked finances and sponsorships
- Organized events with over 200 attendees
- Generated profit

INTERESTS

Nanofunctional Materials | Optics for Microsystems | Micro- & Nanofabrication | Optical Fibre Communication (double hetero-junction, WDM Concepts and Components, Fabry-Perot/ DBF lasers) | Microelectronics, Linear Integrated Circuits, MEMS devices, Multimedia Communication (Camera Imaging, multimedia formats) | CMOS - VLSI (Mentor Graphics)

TCP/IP Protocol Suite (Wireshark) | IEEE 802.11 | Digital Communication | Artificial Neural Networks | Quantum Dots

SELECTED ACHIEVEMENTS

MSc Fellowship

Sep2018

University of Alberta (CAD \$18,000)

All India Rank 1

May2014

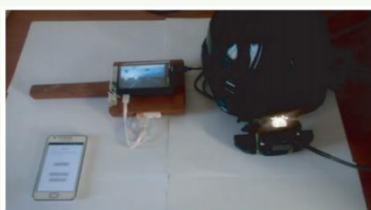
National Creative Aptitude Test (INR 25,000)

Offered Admission for a Masters Degree at

Sep2018

Duke University, Penn. State – Harrisburg, Colorado State Univ., Univ. of Cincinnati(\$10,000 scholarship)

BIOR Device



Laser Induced
Graphene testing

