SEBIN SEBASTIAN XAVIER

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OBJECTIVE

"Photonics is the science of the harnessing of light, a statement that is used to summarize the field and yet within those few words contain new frontiers of knowledge. My passion for research and development has led me to the conclusion that photonics is the technology of the future. It has already been employed worldwide in medicine , defence, research, industry and many more! utilizing imaging, energy and communication ,computing ,material processing etc. My vision is to use this vast field and create technology for research and applications in day to day life, for peace and prosperity worldwide. And for this vision to work the development of skills and expertise are of substantial importance".

INTERESTED FIELDS

- Astronomy and Astrophysics
- Optical interaction of light-matter
- Nano-photonics
- Bio-photonics
- Accousto-optics
- Ultrafast Phenomena of light-matter interaction.
- Quantum Optics
- Imaging systems

ACADEMICS

• August 2015- till date	7.45/10 GPA	Integrated Masters in Photonics (B.Sc-M.Sc)
• August 2015	87.4%	Higher Secondary Education (class 12)
• August 2013	10/10 CGPA	Secondary Education (class 10)

RESEARCH EXPERIENCE

For a period of 2 months, from May to July 2019,I held the position of a Summer Research Fellow at Indian Institute of Science Education and Research (IISER) Mohali. The topic was “Development of Fabri-Perot cavity for vibrational sensing in optical fiber- tips” under Dr Samir Kumar Biswas in Bio- Nano- Photonics lab. As part of the program, I had also been introduced to many esteemed researchers who gave an educational experience of the interdisciplinary research in different sciences that they have pursued. The project gave practical experience in splicing methods such as fusion splicing and exposure to the field accousto-optics that has a deep relation with photonics. My part of the project had work in design of a detection device which incidentally employed a camera lens system employing a raspberry pie model B+ which is an example of a low-cost detection system. The theory behind is the theory of the Fabri-Perot cavity which follows the theory of interference. Detection of ultrasound waves through fiber is done by observing the shift in fringes when vibrations are passed through fiber which can then be observed in detector system.

As part of the course during my 6^{th} semester I have done a mini project in “bio speckle imaging” using Matlab and employed a self-learning algorithm to identify the mechanical aberration made on an apple. This project has given great insight in laser applications and imaging system . An apple was kept as a sample and we let laser light fall on it after employing spatial filtering, the back scattered light was imaged into a CCD camera which gave live images which were later imaged using suitable algorithms.

COMPUTER SKILLS

- C++
- Python
- MATLAB
- MS OFFICE , La-Tex software
- SOLIDWORKS

EDUCATIONAL ACTIVITIES

WORKSHOPS:

- Attended summer school on " Optics and Photonics" during 12 june 2017 to 16 june 2017 at Indian Institute of Science Bangalore, India.
- Attended short course on “optical interaction in nanoscale phenomena” during 1 st December 2018 and 2 nd December 2018 at Raja Ramanna Centre for Advanced Technology (RRCAT), Indore.

- Attended workshop on “CANSAT & Live Data Retrieval” during 2nd February 2019 and 3rd February 2019 conducted by aerospace club in SOE ,CUSAT under the guidance of NASA and Smartcircuits.
- Attended workshop on “introduction to Zeemax a tool for optical design” conducted at International School of Photonics, CUSAT.

CONFERENCES:

- Participated in IONS(International OSA Network of Students) Kochi, India, themed on quantum optics and quantum information(11 September 2017-14 September 2017).
- Participated in National Photonics Symposium, Themed on Nanophotonics held at International School of Photonics, CUSAT, India (27 February 2017-1 March 2017).
- Participated in Quantum Optics Lecture Series held at International School of Photonics ,CUSAT, India(1st October 2016-2nd October 2016).
- Participated in IONS manipal, india themed in optics, biomedical imaging, laser physics etc (11th January 2019-14th January 2019).

AFFILIATION

- **SPIE**- The International Society for Optics And Photonics.
- **OSA**- Optical Society of America.
- **ILA**- Indian Laser Association.

REFERENCES

- Dr Saji KJ, Assistant Professor, International School of Photonics ,CUSAT, Kerala, India, Phone- +91 9400217723 Email-saji@cusat.ac.in.
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