Curriculum Vitae – Yaman Parasher

Personal Information

Yaman Parasher
Institute of Communication, Information and Perception Technologies (TeCIP)
Scuola Superiore Sant'Anna, Pisa, Italy
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Google Scholar Account
LinkedIN Account

Research Interest

Integrated Optics (Photonic Integrated Circuits), Advanced & Hybrid Optical Communication Systems & Networks, Free Space Optics , Spatial Division Multiplexing, Ultradense Wavelength Division Multiplexing,Other Research Interest includes Machine Learning, Big Data, Embedded Systems, IoT.

Summary

Graduate researcher in Electronics & Communication Eng. with background in optical communication & photonics. Experience encompasses working on various in lab optical system design software tools & workbench alongwith expertise in modeling, design, simulation of advance photonic integrated circuits. Published research papers in reputed Science Cited Indexed (SCI) journals such as Elsevier,Springer and international conference of Optical Society of America (OSA), LAOP-2018 in Peru.

Current Learning Status

edX course UBCx : Phot1xSilicon Photonics Design, Fabrication and Data Analysis by Prof. Dr. Lukas Chrostowski. Where till now I was able to design, model, and characterize different silicon photonics circuits including micro-ring resonators, power splitters, Bragg-grating filters, electro-optic modulators, and label-free biosensors, etc through Lumerical Suite, KLayout & Mentor Graphics L-Edit. In the next week, I will receive measurement data from my fabricated photonic devices after which I will analyze the data to extract parameters from the measurements and compare them with models I have designed at the very initial level. Allotted space for the fabrication of my model is $605\mu m$ (width) X $410\mu m$ (height), which is enough for >10 devices.

Education

Erasmus Mundus Joint Master Degree (PIXNET) *Sep. 2019 - Present*
Specialization : Photonic Integrated Circuits, Sensors & Networks
(TeCIP), Scuola Superiore Sant'Anna
Pisa, Italy

Integrated Dual Degree B.Tech + M.Tech *Aug. 2013 - Jun. 2018*
Electronics & Communication Engineering
Specialization : Wireless Communication & Networks
Aggregate CGPA :**8.12/10 (First Division with Distinction)**
School of ICT, Gautam Buddha University **(State Government Research University)**
Greater Noida, Uttar Pradesh, India

Scholastic Awards

Awarded Merit Certificates by Central Board of Secondary Education (CBSE) and Kendriya Vidyalaya Sangathan (KVS) for being in the top 0.1% of candidates passing that subject in All India Secondary School Examination (Class X) 2010.

Technical Competencies

Photonic CAD tools : OptiSuite, Optisim, COMSOL, Lumerical (FDTD, MODE, DEVICE, INTERCONNECT)

Layout Design Tools : KLayout, Mentor Graphics L-Edit, HSPICE.

Scientific softwares : MATLAB, ns2/3, QualNet.

EDA Tools : OrCAD, Multisim, LTSpice, EAGLE.

Programming languages : Python, R, C/C++, TCL/TK, PHP, mySQL.

Frameworks : Git, Hadoop, CodeIgniter, Laravel.

Professional Membership

The International Society for Optics and Photonics (SPIE)
Member of :

- SPIE Student Chapter, Indian Institute of Technology(IIT), Roorkee *2017-present*

Employment History

Delhi Technological University (DTU), New Delhi, India *Aug 2018-Aug 2019*
Project Associate, Optical Communication & Photonics Group
Project : Development of optical components and modules designed for next generation optical communication systems

- Worked on the use of signal processing, communication theory, and optical techniques in designing high capacity optical multiuser/multichannel systems and networks.
- Design & modelled large class of photonic devices, like DFB and DBR laser diodes, gratings, resonant-cavity light-emitting diodes, vertical-cavity surface-emitting lasers, and photonic crystal device for a different set of applications.
- **Tool Used : OptiSuite, Lumerical Suite**
- Documented technical and engineering projects and proposals.
- Gain Knowledge of coherent communications systems, including QPSK,16QAM, and 64QAM, DSP, forward error-correction (FEC), OFDM, WDM, and DWDM transmission systems. Become acquainted with test equipment such as digital oscilloscopes, function generators, spectrum analyzers, and etc.

National Chung Cheng University (CCU),Taiwan *May 2018-July 2018*
AIM-HI,CCU International Research Intern, Photonic Nanostructures & Devices Lab
Project : Analysis and Design of highly reflective resonant cavity structure

- Over the period of Internship , I developed a highly reflective GeSn based resonant cavity structure in the SWIR region for group IV photonic devices.
- **Tool Used : COMSOL**
- My work left scope for further advancement in developing high intensity cavity structures for GeSn based emitters & sensors in the mid infrared region.
- Additionally I was also able to develop expertise in working with fabrication processes like Photolithography and RIE(Reactive Ion Etching) for various MEMS-based applications.

Indian Institute of Technology (IIT),Roorkee *Dec. 2017-Feb. 2018*
Research Intern, Microelectronics & VLSI Lab
Project : Analysis and Design of photonic devices for on chip Optical Interconnects

- The whole work comprised of designing energy efficient photonic devices required to make a whole on-chip optical interconnection link.
- **Tool Used : Lumerical (FDTD, MODE, DEVICE, INTERCONNECT)**
- Initially, in the very beginning, an energy efficient VCSEL was designed by taking into under consideration a few vital design parameters.
- After that Spot-size converter was designed for coupling the laser-to-waveguide. The model was able to provide a coupling efficiency of about 60% .
- Also, the Ge on Silicon photodetector was designed whose structure is optimized by the inclusion of DBR and metal contact in the design to obtain responsivity greater than 0.8 A/W at 1550nm wavelength.

Indian Institute of Technology(IIT),Patna *May. 2017-Jul. 2017*
Preincubatee / Research Intern , Incubation Center for Medical Electronics
Project : Micro Thermal Energy Harvesting Systems for Biomedical Implants

- Developed a minituarised autonomous thermal energy harvesting circuit for Pacemaker.
- The whole system comprises of an analog-domain Maximum power point tracking (MPPT) circuit, a cold startup block based on inductive-load ring oscillator (ILRO) and mode controller.
- **Tool Used : HSPICE (180-nm CMOS technology)**
- For the purpose, a low-voltage oscillator and a low-voltage Charge pump (CP) was designed and simulated which enable the circuit to start up from input voltages as low as 40 mV.
- The designed system was able to generate a regulated 1-3 V output rail with a maximum output power of approximately 120 microwatt.
- The power conversion efficiency comes out to be nearly 50% across a wide range of the input voltage with a maximum efficiency ranging near to 60%.

Summer Intern Advanced Level Telecom Training Centre (ALTTC),Ghaziabad *May. 2016-Jul. 2016*
Summer Internship Program on Telecommunication

- **About the Center** : Advanced Level Telecom Training Centre (ALTTC), Ghaziabad is an Apex level Telecom Training center of BSNL, Govt. of India. It was set up jointly by ITU, UNDP, and Govt. of India and is considered one of the largest telecom training centres in India and amongst the biggest in Asia.

- During the 10 week period of the summer internship, I got acquainted with the working of Mobile technologies like GSM, CDMA, 3G, 4G LTE, and LTE Advanced and Wi-Max.
- Apart from this I also got a close working exposure to the Modern Transmission Technologies like OFC, SDH, NG SDH, DWDM, GPON, FTTH and Next Generation Networks where working of Digital Exchanges, soft Switch, and IMS were explained with real-time systems.
- The internship also includes a trip to the ALTTC , Satellite Earth Station, where I have given a brief exposure to the working of the associated system in the labs.
- **Additional** : In the end, I also got the opportunity to get accustomed to different wireless communication technologies, Router Configurations and a number of networking protocols like TCP/IP, HTTP/S, SSL, SFTP, SNTP, etc.

Publications in Journals

- Kaur, G., Srivastava, D., Singh, P., & **Parasher, Y.** (2019).Development of a novel hybrid PDM/OFDM technique for FSO system & its performance analysis .Optics & Laser Technology, Elsevier 109, 256-262.
- Kaur, G., Kumar, A.,**Parasher, Y.**, & Singh, P. (2018). Design of Multichannel Optical OFDM System Using Advanced Modulation Techniques. Journal of Optical Communications, Degruyter.
- Kaur, G., Rani, N.,**Parasher, Y.**, & Singh, P. (2018).Design and Implementation of Electro-Optic 2 x 2 Switch and Optical Gates using MZI . Journal of Optical Communications, Degruyter.
- Kaur, G., Kumar, V., **Parasher, Y.**, & Singh, P. (2018).Design and Analysis of All-Optical Logic Gates to Improve SNR in Optical Computing Applications, Journal of Optics, Springer.

Publications in Conferences

- **Parasher, Y.**, Kaushik, A., Kaur, G., & Singh, P. (2018, November).Modelling of structural and material parameters of optical planar waveguide to control birefringence . In Latin America Optics and Photonics Conference (pp. Th4A-36). Optical Society of America.
- **Parasher, Y.**, Kaur, G., Tomar, P. & Kaushik, A. (2019). Development of Artificial Neural Network to predict the concrete strength . In Springer Smart innovation system and technology indexed with SCOPUS, Smart Systems, Innovation, and Computing, Springer Singapore (Proceeding of SSIC)-2019.
- Saxena, P. & **Parasher, Y.**(2019).Application of Artificial Neural Network (ANN) for Animal Diet Formulation Modeling . In Procedia Computer Science, International Conference on Pervasive Computing Advances and Applications- (PerCAA- 2019).

Book Chapters

- **Parasher, Y.**, Kedia, D., & Singh, P. (2018).Examining Current Standards for Cloud Computing and IoT . In Examining Cloud Computing Technologies Through the Internet of Things. IGI Global.
- **Parasher, Y.**, Kaur, G., & Singh, P. (2019). Green Smart Security System . In : Emerging Green and Smart Technologies for Smart Cities,CRC Press , Taylor & Francis Group.
- **Parasher, Y.**, Kaur, G., & Singh, P. (2019). Green Smart Town Planning . In : Emerging Green and Smart Technologies for Smart Cities, CRC Press , Taylor & Francis Group.
- **Parasher, Y.**, Kaur, G., & Tomar, P. (2019). Green Smart Environment for Smart Cities . In : Emerging Green and Smart Technologies for Smart Cities, CRC Press , Taylor & Francis Group.

Working Research Papers

- **Parasher, Y.**, Kaur, G., (2019). **Building Predictive model to determine optical signal quality in SDM based fiber optic system using machine learning based linear regression technique**.
- **Parasher, Y.**, Kaur, G., (2019). **Hyperparameter tuning to improve KNN based breast cancer detection model using R**.

Technical Certifications

Summer & Winter Training Program Certifications

Certificate on :

- "Embedded Systems around STM32 Arm Cortex Microcontrollers,32-bit MCUs" *Dec.13-Apr.14*
- "Embedded System and Robotics by ALTTC, Ghaziabad" *May.14-Jul.14*
- "RC Aircarft & Quadcopter by SKifi Labs, New Delhi" *Aug.14-Dec.14*

Social Responsibility

- Served as a **self-motivated volunteer** of Yashodhara Shiksha Shivir under Social Club of Gautam Buddha University, devoted to imparting literacy and education to underprivileged children of poor labourers in our university campus.