

Curriculum Vitae

Personal Information



Name Dr. Gaurav Kumar Bharti

Date of Birth April 13, 1990

Mobile +91-9864084143

Whatsapp +91-9864084143

Email gkbharti.iiitbhopal@gmail.com

Address Room no - TC-107, New Teaching Block,
Indian Institute of Information Technology
Bhopal, Madhya Pradesh, India

Personal/Research Weblink www.apcpsresearchgroup.com

Areas of Interest Electromagnetics, Optoelectronics, Photonics, Optics, Optical Sensors, Nonlinear Optics, Modelling and Simulation, Optical Signal Processing, Quantum Computing, Nanophotonics, Cyber Physical Systems.

Work Experience

July 2023 - Present **Assistant Professor**

Indian Institute of Information Technology Bhopal, MP, India

- Teaching, and Supervising Engineering UG, PG, & Research Students
- Writing & Publishing Research Articles
- Managing Funded Research Project and Consultancy
- Organizing Workshops/Seminars/Short Term Courses/Conference

Fall Semester 2022-23 **Visiting Faculty**

İzmir Yüksek Teknoloji Enstitüsü, Turkey

Dec 2021 - July 2023 **Assistant Professor**

Chandigarh University, Punjab, India

Sep 2020 - Dec 2021 **Post-Doctoral Fellow**

IIT Guwahati, Assam, India

Oct 2019 - Sep 2020 **Research Manager**

ORC Electronics India Pvt. Ltd., Jabalpur, India

Jan 2017 - Oct 2019 **Academic (Teaching) Assistant**

NIT Agartala

Aug 2016 - Jan 2017 **Assistant Professor**

Bhagalpur College of Engineering, Bhagalpur

- March 2014 – Sep 2014 **Research Officer**
ORC Electronics India Pvt. Ltd., Jabalpur, India
- Dec 2013 – Feb 2014 **Electrical Engineer**
Bihar State Co-op Milk Producers Fed. Ltd. (Nalanda Dairy Plant)
- Feb 2013 – Dec 2013 **Production Manager**
Saloni Electronics & Controls, Indore

Educational Qualification

- 2020 **NIT Agartala, Agartala, Tripura (MoE, Govt. of India)**
PhD | Class/CGPA: **FIRST/8.0**
- 2016 **NITTTR, Kolkata, WB (CFTI, MoE, Govt. of India)**
M. Tech | Class/Percentage: **FIRST/76.60**
- 2014 **IASE University, Udaipur, Rajasthan**
M.B.A. (Distance mode) | Class/Percentage: **FIRST/62.64**
- 2012 **RGPV, Bhopal, MP**
B.E. | Class/Percentage: **FIRST/68.19**
- 2008 **St. Joseph's Public School, CBSE, Bihar**
12th (AISSCE) | Class/Percentage: **FIRST/69.00**
- 2006 **D.A.V. Public School, CBSE, Bihar**
10th (AISSE) | Class/Percentage: **FIRST/74.40**

Professional Qualification

- Aug 2014 **Post Graduate Entrance Test, West Bengal with All India Rank (AIR)-45.**

Editorial Services/Academic-Outreach Responsibilities

- Ambassador **IEEE WIE International Leadership Summit October 3-5, 2024 | Chennai, Tamil Nadu, India**
- Session Chair **9th IEEE International Conference on Automatic Control and Intelligent at Shah Alam, 29 June 2024, Malaysia.**
- Session Chair **3rd IEEE International Conference of Emerging Technology (INCET 2022), at Belgaum, 27-29 May 2022, India.**
- Member **Technical Program Committee, 1st International Conference on Sensors and Microsystems, Manipal University Jaipur, 28-29 March 2024**
- Member **National Advisory Board, International Conference on Material Science, Technology & Sustainable Environment, RPS Group of Colleges, Haryana, 18-19 Apr.2024**
- Reviewer **IEEE Photonics Journal**

Reviewer **SERB, DST, Government of India**

Reviewer **1st International Conference on Machine Learning Algorithms 2024, Chitkara University, H.P.**

Reviewer **Journal of Optics (Springer)**

Reviewer **International (Virtual) Conference Recent Advances in Electrical, Electronics, Ubiquitous Communication and Computational Intelligence 2022**

Reviewer **Results in Physics (Elsevier) Journal**

Reviewer **OPTICA (formerly OSA) Nextgen Institute Siegman School, hosted by the University of Warsaw**

Reviewer **Optical and Quantum Electronics (Springer) Journal**

Reviewer **Silicon (Springer) Journal**

Reviewer/Organizing Committee Member **International Conference on Physics and Networks (ICPN) 2020, Seoul, South Korea**

Reviewer **International Conference on Computational Performance Evaluation (ComPE-2020), NEHU Shillong, India**

Reviewer **International Conference on Industrial, Mechanical and Electrical Engineering (ICIMEE 2021)**

Reviewer **Optical Engineering (SPIE) Journal**

Reviewer **Journal of Nanophotonics (SPIE) Journal**

Reviewer **Optoelectronics and Advanced Materials-Rapid Communications**

Reviewer **6th International Conference for Convergence in Technology, Pune**

Mentor **2023 IEEE Women in Engineering Project- Based Learning School Camp, Manav Rachna University, Haryana**

Mentor **2022, IEEE Women in Engineering Project-Based Learning School Camp**

Proctor **IEEEExtreme Programming Competition 14.0**

Reviewer **IEEE Sensors Letter**

Professional Membership/Societies Membership

- Member of **IEEE, IEEE Photonics Society, IEEE Sensor Council, IEEE Young Professional, IEEE Nanotechnology Council** (Membership No. 93636773).
- Member of **OPTICA (formerly OSA)** (Membership No. 1768168)
- Member of **SPIE** (Membership No. 4142595)
- Member of **IE (India)** (Membership No. M1762944)

Sponsored Project Details

- 2024- 2025 **Title:** Design and Development of a Wearable Fibre Bragg Grating based Goniometer for measuring joint angle movements in different physiotherapy applications
Funding Agency: iHUB DivyaSampark-IIT Roorkee under NMICPS, DST, GoI
Role: Principal Investigator (PI)
Amount: Rs. 17.99 Lac
Status: Ongoing
- 2024- 2025 **Title:** Design of FBG Assisted AI Based Planter Pressure Measuring Device for Clinical Applications
Funding Agency: IITI DRISHTI Cyber Physical System Foundation (under National Mission on Interdisciplinary Cyber Physical System, Department of Science and Technology, Government of India)
Role: Principal Investigator (PI)
Amount: Rs. 10 Lac
Status: Ongoing
- 2023- 2025 **Title:** Theoretical Investigation and Analysis of Different Architectures of Quantum Computing for Cyber Physical Systems
Funding Agency: M.P. Council of Science and Technology
Role: Co-Principal Investigator (Co-PI)
Amount: Rs. 8.5 Lac
Status: Ongoing

Sponsored Industrial Consultancy

- 2024 - 2026 **Title:** Design and Development of Different Smart Sensor Modules
Funding Agency: Robotronix Engineering Tech. Private Limited, Indore
Amount: Rs. 5.10 Lac
Status: Ongoing

Training/FDP/Workshop/GiAN Course/Coordinator/Convener

- Organized 5 days FDP "Frontiers of Electronics and Photonics Technologies for Next Generation Industrial Applications" from 20-05-2024 to 25-05-2024 at IIIT Bhopal as a convener.
- Organized Two weeks International Faculty Development Programme on "Advancement in Quantum Computing & Sensor Technology for Viksit Bharat @2047" from 15-04-2024 to 27-04-2024 at The Oxford College of Engineering, Bangalore as a course coordinator.
- Organized 5 days FDP "Frontiers of Electronics and Optoelectronics Circuits" from 01-04-2024 to 05-04-2024 at The Oxford College of Engineering, Bangalore as a convener.
- Coordinator of the two-day Nation-wide mega workshop on VEGA Processors jointly organized by CDAC Meity, and IEEE India Council from 15-16th Nov. 2023 at IIIT Bhopal.
- Coordinator and SPOC of Internal Smart India Hackathon 2024, IIIT Bhopal.
- Coordinator and SPOC of Internal Smart India Hackathon 2023, IIIT Bhopal.
- Successfully Coordinated "Robotics" event of Spandan-Techfest, MIT Indore, 22-27 Nov. 2010.

National / International Conference organized as Chairman/ Secretary

- 21 - 23 Feb, 2025 **Event:** 1st IEEE International Conference on Emerging Technologies and Applications 2025 (IEEE MPsec ICETA 2025), a flagship conference of the IEEE Madhya Pradesh Section
Role: General Co-Chair

Invited Talks/Speakers/Seminars/Workshop/Expert Lectures

- 13 Sep, 2024 **Event:** Invited Talk at G.H Rasoni College of Engineering & Management, Jalgaon
Role: Speaker
- 28 Jun, 2024 **Event:** Invited Talk at Sunway University, Malaysia
Role: Speaker
- 9 Jun, 2024 **Event:** Invited Talk at Ton Duc Thang University, Ho Chi Minh City, Vietnam
Role: Speaker
- 19 Feb, 2024 **Event:** Workshop titled "Hands-on Session of Photonic Circuit Computing and Its Applications" at Chandigarh University, Mohali, Punjab
Topic: Photonic Circuit Computing and Its Applications
Role: Resource Person
- 7 - 9 Dec, 2023 **Event:** SERB sponsored National Seminar at Gyan Ganga Institute of Technology and Sciences, Jabalpur
Role: Key Note Speaker
- 18 Sep, 2023 **Event:** Expert Talk organized by Department of ECE, Inderprastha Engineering College, Ghaziabad.
Topic: Recent Trends in All-Optical Technologies
Role: Resource Person
- 23 May, 2023 **Event:** Invited Talk organized by Department of Physics, RPS Degree College, Balana, Mahendragarh, Haryana
Topic: An Introduction to Nonlinear Optics
Role: Expert
- 2022 **Event:** Tech-A-Month 3.0 (A month-long IEEE CUSB flagship programme) organized by Chandigarh University
Role: Speaker
- 7 - 11 March, 2022 **Event:** STTP organized by SKIT Jaipur
Topic: Application of Artificial Intelligence in VLSI and Communication Technology
Role: Expert
- 16 - 20 Feb, 2022 **Event:** DST sponsored workshop organized by MNIT Jaipur and BIAS Uttarakhand
Topic: Advances in Solar Photovoltaic – Emerging Materials and Technologies
Role: Expert
- 5 Feb, 2022 **Event:** One-day webinar organized by SPIE Student Chapter MNIT Jaipur
Topic: Research-PhD and its Beyond
Role: Speaker
- 25 - 29 Jan, 2022 **Event:** STTP organized by SKIT Jaipur
Topic: Emerging Tools and Techniques in VLSI, MEMS and MOEMS (ETTVMM-2022)
Role: Expert

25 Sep, 2021	Event: One-day webinar organized by IEEE Nanotechnology Council Student Chapter IIT Patna Topic: Modelling of nanophotonic devices using FDTD simulation Role: Speaker
6 - 7 Aug, 2021	Event: Workshop organized by OSA MNIT Student Chapter Topic: Familiarization of FDTD and the modelling of photonics components Role: Expert
15 - 19 Feb, 2021	Event: DST sponsored workshop organized by MNIT Jaipur and BIAS Uttarakhand Topic: Thin Film Photovoltaics - Enabling the Era of Next Generation Solar Cells Role: Expert
22 - 27 Jun, 2020	Event: FDP program organized by E&ICT Academy, NIT Patna Topic: Next-Generation Semiconductor Devices For High-End Applications Role: Expert
17 - 21 Jun, 2019	Event: 5-days AICTE Training and Learning (ATAL) Academy Workshop on "Robotics" organized at CSED, NIT Agartala Topic: Robotics Role: Speaker
18 Aug, 2018	Event: One-day workshop organized by ECE department of Tripura Institute of Technology, Narsingarh, Tripura Topic: Introduction of Robotic Circuit Design and Automation Role: Resource Person
24 Sep, 2016	Event: One-day workshop at Bhagalpur College of Engineering, Bhagalpur, Bihar Topic: EDA-Electronic Design and Automation Role: Speaker
3 Feb, 2016	Event: Seminar at Ganga Memorial College of Polytechnic, Harnaut, Bihar Topic: Digital Electronics Role: Speaker
30 Oct, 2015	Event: Seminar at St. Mary and Jesus School, Kolkata Topic: Basic Electronics & its Components Role: Speaker

Training/FDP/Workshop/GiAN Course Attended

- Participated in AICTE recognized FDP on "Ansys-EM Software (in collaboration with Ansys)" organized by NITTTR Chandigarh, from 27/02/2023 to 03/03/2023.
- Participated in AICTE recognized FDP on "Applications of AI in Electronics Design" organized by NITTTR Chandigarh, from 20/02/2023 to 24/02/2023.
- Participated in DST-SERB Sponsored "Recent Trends in Electromagnetics and Optics (RTEOp 2023)", organized by IEST Shibpur from 17th-20th Jan. 2023.
- Participated in five days FDP on "Research Trends in Optical Technologies and its Applications (RTOTA-2023)" organized by VIT Vellore, from 05th-09th Jan 2023.
- Attended TEQIP-III sponsored One-Week online FDP on "Indian Knowledge System & National Education Policy 2020" from 21.03.2022 to 25.03.2022.
- Attended one-week ATAL FDP on "Design Thinking" from 17th - 21st January 2022.

- Participated in one week FDP on “Research Essentials” from 31st Dec 2021- 5th Jan 2022 organized by Chandigarh University.
- Participated in five days FDP (GURU-DAKSHTA) on “Implementation of National Education Policy 2020: Role of Faculty in Higher Education Institution” from 20th - 24th Dec 2021 organized by Chandigarh University.
- Participated in Short-term course on “Photonics and Photovoltaics: Devices, Circuits, and Metrology” organized by IIT Guwahati from 1/12/20 to 24/12/20.
- Participated in Short-term course on “Optoelectronics and Nanophotonics” organized by IIT Guwahati from 06/11/20 and 07/11/20 to 09/11/20 and 12/11/20.
- Attended a webinar on “Photonic Integrated Circuits” Organized by DSATM and IEEE Photonics Society, Bangalore Chapter.
- Attended a webinar on “Marriage between Holography and Statistical Optics for Unconventional Computational Imaging: A Tutorial” organized by OSA Student Chapter, MNIT on 8th July 2020.
- Attended a webinar on “Structured Light Beams and their Applications” organized by OSA Student Chapter, MNIT on 30th June 2020
- Participated in virtual symposium on “International Day of Light (IDL-2020)” organized by IEEE Photonics Society, SPIE Student Chapter and Department of Physics, IIT Guwahati on 16th May 2020.
- Participated in AICTE Training And Learning (ATAL) Academy workshop on “Artificial Intelligence” from 22/02/19 to 26/02/19 at NIT Agartala.
- Participated in National Conference on “Smart and Sustainable City Infrastructure” at NIT Agartala on 29th Nov. 2018, organized by BIS New Delhi, NIT Agartala, IEI Tripura State Centre, IBC Tripura Centre.
- Participated in regional workshop on “National Information System for Climate and Environment Studies (NICES), at NIT Agartala 5th Feb. 2018.
- Attended GiAN course on PT-symmetry and its realization in experimental systems: theory and application, at NIT Agartala, 13th-17th Feb. 2017.
- Attended STTP programme on “Role of Technical Education in Implementation of Community Development Programme” organized by NITTTR, Kolkata in BCE Bhagalpur, 9th-18th Nov. 2016.
- Attended workshop on “LabVIEW based system design for multidisciplinary Engineering applications”, at MAKAUT, WB, 2nd-6th Nov. 2015.
- Undergone training on “Embedded System and Image Processing” at ORC Electronics India Pvt. Ltd., Jabalpur, MP, 12th- 27th Oct. 2015.
- Attended training on “PLC programming (Siemens/ABB)” at ESTC, MSME Nainital, 18th June-13th July 2012.
- Undergone training for “Monitoring and Control by Electronic Level Instruments” by Sapcon Instruments Pvt. Ltd., Indore, MP, 6th-21st July 2011.
- Under gone vocational training at “Satpura Thermal Power Station”, Sarni, MP, 5th Aug. - 4th Sep. 2010.
- Participated in workshop on “Basic Circuit Designing & Autonomous Robotics” in SATM, Indore 18th-20th June 2010.
- Attended “3 days PCB workshop” organized by LNCT, Indore, MP, 16th-18th 2010.
- Participated in the workshop based on “artificial intelligence-based robotics”, guided by ISRO.

Achievements/Scholarships & Fellowships/Grants

- Received International Travel Grant from Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India, GoI to present the research paper at 9th IEEE International Conference on Automatic Control and Intelligent at Shah Alam (29 June 2024), Malaysia.
- Coordinated the celebration of National Science Day 2024, and received the grant from MPCST under Science and Technology Popularization Scheme.
- Secured position among the top 2% of the scientists for the year 2023 (data released by Stanford University).
- Received Best “Chapter Advisor Award” of IEEE Photonics Society CUSB from Chandigarh University for the year 2022-2023.
- Received fellowship for “Visiting Faculty” at “Izmir Institute of Technology, Turkey” under International Faculty Fellowship Program (IFFP) 2022 from Chandigarh University, India
- Received “Transformative Researcher of the Department Award for the Year 2022” by Chandigarh University on 05/09/2022.
- Received best paper awards in two research papers at the 1st International Conference on Recent Developments in Electronics and Communication Systems (RDECS), 22-23 July 2022.
- Got IIT Guwahati Institute Post-Doctoral Fellowship for Post-Doctoral Research for session 2020-2021, 2021-2022.
- Selected for IEEE R10 SAC Membership Development and Leadership Training Fund 2019 for Accelerating Membership Development Drive and Leadership Training Programs at NIT Agartala.
- Best Poster award received on Research Scholars’ Day, at NIT Agartala, 1st Feb. 2018
- Got MHRD scholarship for PhD in 2016-17, 2017-2018, 2018-19.
- Got “A+ grade” in the training of “PLC programming”, organized by ESTC, MSME, Nainital, July 2012.
- Selected for the player of under 19 “Association of Nalanda District Cricket” in the 2007-08 session.

Administrative/Academic Experiences

- Ph.D. Examiner at Chandigarh University, 2024.
- Question Paper Evaluator for Summative Examination- Digital University, Kerala, 2024.
- Vice-Chair, Social media, IEEE Madhya Pradesh Section Execom 2024-25.
- Serving as a Chief Information Security Officer, IIIT Bhopal.
- Successfully Coordinated the MoU of IIIT Bhopal with CSIR-CRRI, New Delhi in 2024.
- Successfully Coordinated the MoU of IIIT Bhopal with PHN Technology Pvt. Ltd. Pune in 2024.
- Member of Anti-Ragging Committee of IIIT Bhopal for AY- 2023-24, 2024-24.
- Serving as a PG coordinator, ECE department of IIIT Bhopal.
- Founder Branch Counselor of IEEE IIIT Bhopal Student Branch from AY-2023 -24 to AY-2024-25.
- Faculty coordinator, ECE 3rd Year, IIIT Bhopal, from July 2023 onwards.
- Lab Coordinator, ECE Lab, IIIT Bhopal, from July 2023 onwards.

- Served as a “Visiting Faculty” at the EED of Izmir Institute of Technology, Izmir, Turkey in between the Fall Semester (Oct 22 - Jan 2023) under the International Faculty Fellowship Programme of Chandigarh University.
- Member of Departmental Research Committee (DRC) of EED, Chandigarh University (AY- 2022-23).
- Member of Discipline cum Anti-Ragging Squad of Department of Student Affairs, Chandigarh University (AY-2022-23).
- Served as a Chapter Advisor of IEEE Photonics Society Chandigarh University Student Branch Chapter from 07th March 2022 to 07th March 2023.
- Founder and the Past Chairman of IEEE Student Branch of NIT Agartala from 23/03/2019 - 22/03/2020.
- Was active member (Even Semester 2018-19) of the mess committee of RNT Hostel of NIT Agartala.
- Taken various laboratory classes as a Teaching Assistant during PhD tenure.
- Member of anti-ragging squads of BCE, Bhagalpur for odd-semester from Aug.-Dec. 2016

Establishment of New Lab(s)

- Name(s) of lab established-Advanced Photonics and Cyber Physical Systems (APCPS) Lab, Academic year- 2024-25, Department Concerned-Electronics and Communication Engineering, No. of experiments-10

Projects Undergone

- (UG) B.E. Opto-coupler based isolation circuit for three phase-controlled converter
- (PG) M.Tech Design and Development of Robot for Video Streaming
- (Doctoral) PhD. Modelling of Silicon Micro-Ring Resonator Based All-Optical Logic Circuits And Their Applications

PhD Thesis (Supervised - 2, Ongoing 0)

- Thesis Title Numerical Investigation of Photonic Crystal Structure For Sensing Applications
- Name of Scholar Mr. Rohit Kumar (UID -20YEE1001)
- Year of Award March 2024
- Role Co-Supervisor
- Thesis Title Design And Performance Analysis Of An Efficient And Heterojunction Based Multilayer Photo-Detector
- Name of Scholar Ms. Gazia Manzoor (UID -20YEE1002)
- Year of Award Feb 2024
- Role Co-Supervisor

Intern Supervision (Supervised - 2, Ongoing 0)

Title **Cyber Physical System Based Distributed Real Time Draining System for Smart Cities**

Name of Scholar **Mr. Avishek Golder**

Year 2024

Title **Cyber Physical System Based Wearable Health Monitoring Device For Defense Applications**

Name of Scholar **Mr. Anubhav Kumar Pandey**

Year 2024

PG Dissertation/Project Guided (Supervised - 2, Ongoing - 0)

Thesis Title **Modelling and Performance Analysis of Lab on Chip 2D Photonic Crystal for detection of diseases**

Name of Scholar **Ms. Rupinder Kaur (UID - 21MEC1016)**

Year of Award 2023

Role Supervisor

Thesis Title **Modelling and Numerical Investigation of Graphene Assisted SIW Patch Antenna for Different Applications in X-band**

Name of Scholar **Mr. Mainpal (UID- 21MSP1062)**

Year of Award 2023

Role Supervisor

UG Dissertation/Project Guided (Supervised - 25, Ongoing - 2)

Title **Theoretical Study and Designing of Quantum Gates**

Name **Manmeet**

Role Supervisor

Title **Disease Prediction with Photonic Sensor using Machine Learning**

Name **Vaibhav Singh, Yasho Vardhan Gwaley, Heeren Kumawat**

Role Supervisor

Title **Image to Pencil Sketch**

Name **Shubham Tripathi, Shivam Kumar Singh, Mayank Sardana**

Role Supervisor

Title **Emotion Based Music Player**

Name **Aman Kumar Ghosh, Asad Amanullah, Debdulal Das, Harsh Kumar Gupta, Himanshu Affaria**

Role Supervisor

Title	Weather Forecasting App
Name	Anshul Bharat, Abhijeet Ranjan, Suraj Yadav
Role	Supervisor
Title	A Cloud-Based Real Time Weather Reporting System Using IoT
Name	Aisheek Mazumder
Role	Supervisor
Title	Customer Support Bot
Name	Bhavya Singh, Himanshu Kumar, Suraj Kumar, Aman Prakash Sharma
Role	Supervisor
Title	AI Virtual Mouse
Name	Aditya Kumar Singh, Arjun Singh Chandel, Harsh Gupta, Tushar Kathuria
Role	Supervisor
Title	Stock Price Prediction
Name	Jlex Laimayum
Role	Supervisor
Title	Face Detection
Name	Pranshu Mishra
Role	Supervisor
Title	Greenhouse Monitoring System
Name	Anurag Aditya, Kanchan Kumari, Neha Yadav
Role	Supervisor

List of accepted/published journal papers

- 2024 [26] A. P. Narayan, I. Jahan, **G. K. Bharti**, "Femtosecond Laser-Fabricated Fiber Bragg Grating Array for Bio-Mechanical Foot Insole Pressure and Strain Sensing Applications," IEEE Sensors Journal, 2024 (under review).
- 2024 [25] P. Sah, Pushpalata, M. Kumar, P. Mirajkar, B. Neole, A. Srivastav, **G. K. Bharti**, "Compact broadband optical filter with perturbed Bragg gratings in silicon-on-insulator waveguide," Optical Engineering, 63 (9), (2024).
- 2024 [24] P. Sah, D. Kumar, P. R. Yashaswini, A. Srivastava, B. Kumar, A. Amphawan, **G. K. Bharti**, "Integrated optical ring resonator-based comb filter in silicon-on-insulator with through-to-add port feedback path showing larger free spectral range," Journal of Nanophotonics, 18 (2), (2024).
- 2024 [23] J. Yadav, S. K. Tripathy, **G. K. Bharti**, N. Kumar, "Numerical Investigation of Novel 2D Photonic Structure for Cancerous Cell Detection," Compact Broadband Optical Filter with Perturbed Bragg Gratings in SOI Waveguide, The European Physical Journal Plus, 308 (2024).
- 2022 [22] G. Manzoor, K. K. Sharma, **G. K. Bharti**, D. Nath, "Modelling and Performance Analysis of CuPc and C60 based Bilayer Organic Photodetector," International Journal of Electrical and Electronics Research, 10 (4), (2022).

- 2022 [21] R. Kumar, **G. K. Bharti**, R. Bindal, "Modeling and Simulation of an Optical Sensor for Cancer Cell Detection," *International Journal of Electrical and Electronics Research*, 10 (4), (2022).
- 2022 [20] R. Kumar, **G. K. Bharti**, R. Bindal, "Detection and Analysis of Bacterial Water using Photonic Crystal," *Ring-Resonator Based Refractive-index Sensor on SOI Platform*, *International Journal of Electrical and Electronics Research*, 10 (4), (2022).
- 2022 [19] K. K. Choure, **G. K. Bharti**, A. Saharia, N. Mudgal, A. Bhatnagar, G. Singh, "Design and Simulation of All-Optical Swap and Fredkin gates using Mode-Rotation based Race-Track Ring Resonator," *Optical and Quantum Electronics*, 54, 276 (2022).
- 2022 [18] **G. K. Bharti**, R. K. Sonkar, "Design and performance analysis of all-optical D and T flip-flop in a polarization rotation based micro-ring resonator," *Optical and Quantum Electronics*, 54, 176 (2022).
- 2021 [17] **G. K. Bharti**, R. K. Sonkar, "Implementation of polarization rotation using microring resonator and its application to design all-optical switch," *Optical Engineering*, 60 (8), 085109 (2021).
- 2021 [16] **G. K. Bharti**, R. K. Sonkar, "Implementation of polarization rotation using microring resonator and its application to design all-optical switch," *Optical Engineering*, 60 (8), 085109 (2021).
- 2021 [15] **G. K. Bharti**, J. K. Rakshit, "Design of all-optical logical mode-switching using micro-ring resonator," *Optical Engineering*, 60 (3), 035103 (2021).
- 2021 [14] J. K. Rakshit, K.E. Zoiros, **G. K. Bharti**, "Proposal for ultrafast all-optical pseudo random binary sequence generator using micro ring resonator-based switches," *Journal of Computational Electronics*, 20 (2021).
- 2021 [13] U. Biswas, J. K. Rakshit, J. Das, **G. K. Bharti**, B. Suthar, A. Amphawan, M. Najjar, "Design of an ultra-compact and highly-sensitive temperature sensor using photonic crystal based single micro-ring resonator and cascaded micro-ring resonator," *Silicon*, 13, (2021).
- 2020 [12] A. E. Arumona, I. S. Amiri, S. Punthawanunt, K. Ray, G. Singh, **G. K. Bharti**, P. Yupapin, "3D-quantum interferometer using silicon microring-embedded gold grating circuit," *Microscopy Research and Technique*, 83 (10) (2020).
- 2020 [11] A. Garhwal, K. Ray, A. E. Arumona, **G. K. Bharti**, I. S. Amiri, P. Yupapin, "Spin wave generation using MZI embedded plasmonic antennas for quantum communications," *Optical and Quantum Electronics*, 52(5) (2020).

- 2020 [10] **G. K. Bharti**, M. P. Singh, J. K. Rakshit, "Design and Modeling of Polarization-Conversion Based all- Optical Basic Logic Gates in a Single Silicon Ring Resonator," *Silicon*, 12, (2020).
- 2020 [8] U. Biswas, J. K. Rakshit, **G. K. Bharti**, "Design of photonic crystal microring resonator based all-optical refractive-index sensor for analyzing different milk constituents," *Optical and Quantum Electronics*, 52 (19), (2020).
- 2019 [8] **G. K. Bharti**, U. Biswas, J. K. Rakshit, "Design of micro-ring resonator based all optical universal reconfigurable logic circuit," *Optoelectronics And Advanced Materials – Rapid Communications*, 13 (7-8), 2019.
- 2019 [7] **G. K. Bharti**, J. K. Rakshit, M. P. Singh, P. Yupapin, "Design of all-optical universal logic gates using mode-conversion in single silicon microring resonator," *Journal of Nanophotonics*, 13 (3), 2019.
- 2019 [6] **G. K. Bharti**, J. K. Rakshit, "Micro-ring resonator based all optical reversible logic gates and its applications," *Optoelectronics And Advanced Materials – Rapid Communications*, 13 (1-2), 2019.
- 2019 [5] **G. K. Bharti**, J. K. Rakshit, S. S. Pal, "Design and modeling of mode-conversion in ring resonator and its application in all-optical switching," *Microsystem Technologies*, 25 (1), 2019.
- 2018 [4] **G. K. Bharti**, J. K. Rakshit, "Design and Performance Analysis of High Speed Optical Binary Code Converter using Micro-Ring Resonator," *Fiber and Integrated Optics*, 37(2), 2018.
- 2018 [3] **G. K. Bharti**, J. K. Rakshit, "Design of all-optical JK, SR and T flip-flops using micro-ring resonator-based optical switch," *Photonic Network Communications*, 35(3), 2018.
- 2016 [2] K. Sagar, **G. K. Bharti**, "Solarization of Petrol Pumps in India: An Environmental-Friendly Alternative and its Role in Creating Awareness," *International Journal of Science and Research*, 5(8), 2016.
- 2016 [1] K. Sagar, **G. K. Bharti**, "Tiny Particles & Macro Challenges: Evaluating the Rational Debate of Social and Ethical Issues in Nanotechnology," *Journal of Basic and Applied Engineering Research*, 3(12), 2016.

List of accepted/published Conference Papers

- 2024 [21] A. Shankarpurkar, M. Meet, V. Chatterjee, M. Khairnar, **G. K. Bharti**, "Programmable Quantum Gates for Classical Computing Applications," 9th IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS 2024), June 29, 2024.
- 2024 [20] A. Rahangdale, V. Singh, H. Kumawat, Y. V. Gwaley, G. N. Nirala, **G. K. Bharti**, "Design And Modelling of Machine Learning Based Photonic Sensor For Different Disease Detection," 9th International Conference on Integrated Circuits, Design, and Verification (ICDV 2024), June 6-8, 2024.
- 2023 [19] Mainpal, **G. K. Bharti**, "Modelling and Numerical Investigation of Graphene Assisted SIW Patch Antenna for Different Applications in X-band," 3rd Asian Conference on Innovation in Technology (ASIANCON), 2023.
- 2023 [18] K. K. Choure, **G. K. Bharti**, A. Saharia, N. Mugdal, G. Singh, "Modelling of SWAP Gate Using Compact Ring Resonator," International Conference on Optical and Wireless Technologies, Springer, Singapore, 2023.
- 2023 [17] R. Kaur, **G. K. Bharti**, A. Tripathi, "Modeling of 2D Photonic Crystal Based Sensor for the Detection of Tuberculosis Disease," 2023 IEEE 8th International Conference for Convergence in Technology (I2CT), Lonavla, India, pp. 1-4, 2023.
- 2023 [16] G. Manzoor, K. K. Sharma, **G. K. Bharti**, "Modeling and Simulation of Heterojunction Based Multilayer High-Speed Vertical CIGS Photodetector," 2023 International Conference for Advancement in Technology (ICONAT), Goa, India, 2023.
- 2022 [15] R. Kumar, **G. K. Bharti**, R. Bindal, "Optimization and Comparative Analysis of PhCRR Based Sensor with Distinct Structures," 2022 International Conference on Futuristic Technologies (INCOFT), Belgaum, India, 2022.
- 2022 [14] G. Manzoor, K. K. Sharma, **G. K. Bharti**, "Enhanced Wideband Photoresponse and Detectivity in In₂S₃/CIGS Heterojunction Based Photodetector," 2022 International Conference on Smart Generation Computing, Communication and Networking (SMART GENCON), 2022.
- 2022 [13] R. Kumar, **G. K. Bharti**, R. K. Bindal, "Modeling, Optimization and Performance Analysis of Different Chemical and Biochemical Sensors for Distinct Analytes," 3rd Global Conference for Advancement in Technology (GCAT), 2022.
- 2022 [12] R. Kaur, **G. K. Bharti**, A. Tripathi, "Modelling Of 2D Photonic Crystal Based Micro Ring Resonator Sensor For The Detection Of Malaria," 2nd Asian Conference On Innovation In Technology (2nd Asiancon 2022), 26-28 August 2022.

- 2022 [11] N. Saurabh, P. Jain, R. Katoch, S. Pandey, V. Nikam, A. Behal, **G. K. Bharti**, "Efficient Face Mask Detection For Different Surveillance Applications Using Python," 2nd Asian Conference On Innovation In Technology (2nd Asiancon 2022), 26-28 August 2022.
- 2022 [10] **G. K. Bharti**, A. Ranjan, A. Bharat, S. Yadav, "Design and Development of an Efficient and Intelligent Weather Forecasting App," 1st International Conference on Recent Developments in Electronics and Communication Systems (RDECS-22), 22-23 July 2022.
- 2022 [9] P. Mishra, **G. K. Bharti**, "Efficient Face Detection for Distinct Multimedia using Object-Oriented Programming," 1st International Conference on Recent Developments in Electronics and Communication Systems (RDECS-22), 22-23 July 2022.
- 2022 [8] A. Mazumder, **G. K. Bharti**, "A cloud-based real-time weather reporting system using IoT," 1st International Conference on Recent Developments in Electronics and Communication Systems (RDECS-22), 22-23 July 2022.
- 2021 [7] **G. K. Bharti**, R. K. Sonkar, "Modeling of Polarization Rotation Based All Optical Logic Switch Using Ring Resonator," 10th IEEE CPMT Symposium Japan 2021 (ICSJ 2021), 10-12 November 2021.
- 2021 [6] **G. K. Bharti**, R. K. Sonkar, "Modeling of polarization-rotation based photonic D flip-flop using a compact micro-ring resonator," 21st International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD 2021), 13-17 September 2021.
- 2020 [5] M. P. Singh, J. K. Rakshit, U. Biswas, **G. K. Bharti**, A. Tiwari, "Design of all-optical OR/AND logic gates using conversion of polarized states in single-waveguide coupled ring-resonator," IEEE International Conference on Computational Performance Evaluation (ComPE 2020), 02-04 July 2020.
- 2019 [4] M. P. Singh, **G. K. Bharti**, J. K. Rakshit, U. Biswas, "Design of polarization switch in a single micro-ring resonator and its application to design all-optical logic OR/NOR gates using FDTD," International Conference on Electrical, Electronics and Computer Engineering (UPCON 2019), 08-10 November 2019.
- 2019 [3] U. Biswas, **G. K. Bharti**, J. K. Rakshit, "Design of photonic crystal based sensor for analyzing water content in milk," International Conference on Innovation in Modern Science and Technology (ICIMSAT 2019), 20-21 September 2019.
- 2019 [2] **G. K. Bharti**, J. K. Rakshit, "All-optical logic AND/NAND gates using two symmetric micro-ring resonators," International Conference in Optical and Photonic Engineering (icOPEN 2019), 16-20 July 2019.
- 2018 [1] S. S. Pal, **G. K. Bharti**, J. K. Rakshit, U. Biswas, "Implementation of polarization-conversion in ring-resonator and its application to design all-optical NOT logic gate," International Conference for Convergence in Technology (I2CT 2018), 06-08 April 2018.

BOOK/CHAPTERS

Book-Fundamentals of Semiconductors Devices

Gaurav Kumar Bharti, Nudrat Sufiyan, P.R. Yashaswini, Ibrar Jahan M A

Scientific International Publishing House (SIPH), India

ISBN:978-93-5757-488-4; Year-2023

Book- AI-Driven IoT Systems for Industry 4.0

Chapter- Implementation of Intelligent CPS for Integrating the Industry and Manufacturing Process

T. Rajasanthosh Kumar, Mahesh. M. Kawade, Gaurav Kumar Bharti, G. Laxmaiah

Taylor and Francis Group, CRC Press

ISBN:978-10-0343-231-9; Year-2024

Book-Contemporary Developments in High-Frequency Photonic Devices

Chapter-All optical switching and logic gates design using mode (polarization)- conversion in micro-ring resonator

Jayanta Kumar Rakshit, Gaurav Kumar Bharti

IGI Global Publishers

ISBN 978-15-2258-533-6; Year-2019

Book-45 days Kokborok Speaking Course (in press)

Ajita Tripura, Gaurav Kumar Bharti

Directorate of Kokborok & Other Minority Languages

Book/Chapter (Textbook)-Editorship

Book-Crypto Currency and Block Chain Technology

Gaurav Kumar Bharti, Mukta Sandhu, Ganesh Gupta, T. Venkata Satya Vivek

Scientific International Publishing House (SIPH), India

ISBN: 978-93-5757-308-5; Year-2023

Book/Chapter (Reference Book)-Editorship

Book-Leveraging Artificial Intelligence in Quantum Photonics and Electronics for Urban Development (Submitted)

Gaurav Kumar Bharti, Rajeev Ranjan, Anandita Goswami, Angela Amphawan

Taylor and Francis Group, CRC Press

Patents

Wireless Laptop Charger Cum Cooling Pad

Application Number- 385882-001

Soumya Ranjan Jena, Subhajit Roy, Narendra Nath Jana, Rishabh Dev Shukla, Gaurav Kumar Bharti, Narendra Kumar

Published by Indian Patent Office, India on 14/07/2023

**Automated Auditing System For Data Integrity And Verification Using Blockchain Technology
Application Number - 202311034198**

Devender Kumar, Aman Gupta, Ajit Kaswan, Tumma Srinivasarao, Gaurav Kumar Bharti, Dr. Sanju Das

Published by Indian Patent Office, India on 23/06/2023

**Large FSR Ring Resonator in Silicon-on-Insulator with Through-to-ADD Port Feedback Path
Application Number-202331053160**

Parimal Saha, Pushpalata, P. R. Yashaswini PR, Gaurav Kumar Bharti, Ranjan Kumar, Abhinav Kumar

Published by Indian Patent Office, India on 14/07/2023

Copyright(s)

**An Innovative Approach for Detecting cyber-physical attacks in Cyber Manufacturing systems :
A Deep Transfer Learning Mode.**

S. S. Sivasankari, M. Soni, M. A. Rusho, N. Marathe, K. S. Yogi, G. K. Bharti

Canadian Copyright, Ref. no. 1214447, June 2024

Past/Ongoing Research Collaborations

- Prof. Angela Amphawan** Professor and Head, Smart Photonics Lab, Sunway University, Malaysia
Former Deputy Vice-Chancellor and Professor of University Malaysia of
Computer Science & Engineering (UNIMY),
Research Laboratory of Electronics, Massachusetts Institute of Technology,
Cambridge, 02139 Massachusetts, USA
- Prof. Monia Najjar** Managing Director and Professor,
Higher Institute of Computer Science, University of Tunis El Manar, Tunisia
- Prof. Fayaz Hussain** Associate Professor
Electrical and Electronics Engineering, Ton Duc Thang University, Vietnam

References

- Prof. Ajoy Kumar Ray** Director, JIS Group Kolkata, Former Director, IEST Shibpur,
Former Professor, IIT Kharagpur
- Prof. P. S. Avadhani** Visiting Professor, IIPE Visakhapatnam, Former Director, IIIT Agartala
- Prof. Manoranjan Parida** Director, CSIR-CRRI, Former Deputy Director, IIT Roorkee
- Prof. Saurabh Kumar Pandey** Associate Professor, EEE Deptt., IIT Patna

I hereby declare that the information given above is true and best of my knowledge.

Date:

Sign

Place

Name : Dr. Gaurav Kumar Bharti