Curriculum Vitae

Prof. Sai Siva Gorthi

Professor, Department of Instrumentation and Applied Physics
Indian Institute of Science (IISc), Bangalore

Personal Information

- **Name:** Sai Siva Gorthi, PhD
- **Position:** Professor
- **Department:** Instrumentation and Applied Physics
- **Institution:** Indian Institute of Science (IISc), Bangalore-560012, India
- **Email:** saisiva@iisc.ac.in, saisiva.gorthi@gmail.com
- **Phone:** 080-2293 3502, 9008974499
- **Website:** http://iap.iisc.ernet.in/~saisiva.gorthi/
- **Google Scholar:** https://scholar.google.co.in/citations?hl=en&user=9UiF1owAAAAJ
- **Date of Birth:** 5th August 1981
- **Gender:** Male
- **Category:** General

Education

Degree	Year	Subject	University/Institution
Ph.D.	2010	Optical Metrology	EPFL (Swiss Federal Institute of Technology), Lausanne, Switzerland
M.Sc. (Engg)	2006	Optical Instrumentation	IISc
B.Tech.	2003	ECE	JNTU

Ph.D. Thesis: "Spatial Fringe Analysis Methods and their Application to Holographic Interferometry and Fringe Projection Techniques"
Advisor: Prof. Pramod Rastogi

Work Experience (Complete Chronological Order)

Position	Institution	From	To
Professor	IISc	March 2024	Till date
Associate Professor	IISc	March 2018	March 2024
Principal Research Scientist	SigTuple Technologies	July 2018	July 2019
Assistant Professor	IISc	July 2012	March 2018
Postdoctoral Fellow	Harvard University	March 2011	June 2012
Postdoctoral Researcher	EPFL	August 2010	December 2010
Doctoral Assistant	EPFL	January 2007	July 2010
R&D Engineer	IBM	March 2006	November 2006
Research Student	IISc	August 2003	December 2005

Research Interests

- Point-of-Care Diagnostic Platform Technologies
- Optofluidics and Microfluidics
- Flow Cytometry and Imaging Flow Cytometry
- Computational Imaging and Digital Holography
- Optical Metrology and Interferometry
- Biomedical Instrumentation

Professional Recognition/Awards/Prizes/Certificates/Fellowships (Complete List)

No.	Award Name	Awarding Agency	Year
21	**Modi Prix Galien India Award 2025**	Best Academic / Public Sector Category	2025
20	**Aarohan Social Innovation Award 2023 (Jury's Special Award)**	Infosys Foundation under Healthcare Category	2023
19	**Head, Regional Resource Center (RRC) of Health Technology Assessment in India (HTAIn) at IISc**	Department of Health Research (DHR), Ministry of Health and Family Welfare (MoHFW)	2022
18	**Prof. U R Rao best PG Innovation Award**	Karnataka state Science and Technology Academy (KSTA)	2022
17	**Gore Subraya Bhat Chair in Digital Health**	Gore Subraya Bhat Endowment, IISc	2021
16	**"Best Product Award" for MITR (Mobile Infection Testing and Reporting) Labs for CoViD-19 Testing in Karnataka and India**	Two Awards Received (1) Dept. of Information Technology & Biotechnology (IT/BT), GoK, (2) DST	2020
15	**Gandhian Young Technological Innovation Award for "Novel CD4 cell count method for HIV infected patients using a Hematology Analyzer"**	SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions)	2020
14	**Gandhian Young Technological Innovation Award for Cost Effective Inspection System For Automated Large Scale Cocoon Quality Assessment**	SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions)	2017
13	**Gandhian Young Technological Innovation Award for Low Cost Automated Handheld Melamine Detection Device (for Testing Melamine In Milk)**	SRISTI (Society for Research and Initiatives for Sustainable Technologies and Institutions)	2017
12	**INAE Young Engineer Award**	Indian National Academy of Engineers	2016
11	**INSA Young Scientist Medal**	Indian National Science Academy	2016
10	**Gandhian Young Technological Innovation Award for Automated opto-fluidic Microscope**	SRISTI (Society for Research and Initiatives for Sustainable	2016

	for Cellular Diagnostic Testing	Technologies and Institutions)	
9	**ISOI Young Scientist / Engineer Award**	Instrumentation Society of India (ISOI)	2015
8	**SPARSH (Touching a Billion Lives) Awardee**	Biotechnology Industry Research Assistance Council (BIRAC)	2014
7	**Biotechnology Ignition Grant (BIG Innovator)**	Biotechnology Industry Research Assistance Council (BIRAC)	2014
6	**Fast Track Young Scientist Award**	SERB-DST	2014
5	**The Best Innovators Pitch Award**	Biotechnology Industry Research Assistance Council (BIRAC)	2014
4	**Innovative Young Biotechnologist Award**	Department of Biotechnology	2013
3	**Among the 8 Best Theses of EPFL**	Swiss Federal Institute of Technology	2010
2	**Best Researcher Award**	ENAC (Architecture, Civil and Environmental Engineering Division)- EPFL, Lausanne, Swiss	2009
1	**Swiss National Foundation Fellowship**	Swiss National Science Foundation (SNSF)	2007

Students Graduated (Complete List - 14 Students)

Ph.D. Students Graduated (8 Students):

- **8. Prateek Katare** (Sept 2022) - "Lab to Point-of-Need Technology: Solving the A³ Puzzle of in-vitro Diagnostics"
- **7. Rajesh Srinivasan** (May 2022) - "Platform Technologies for In Vitro Point-of-Care Diagnostics"
- **6. Prasobhkumar PP** (Sept 2021) - "Advanced Instrumentation for Detection of Defects and Diseases in Sericulture"
- **5. Radhika NK** (Jan 2021) - "Point-of-Need Analyte Detection using dsDNA-templated Fluorescent Copper Nanoparticles"
- **4. Manish Saxena** (July 2019) - "Structured Illumination Techniques for Performance Enhancement in Optical Metrology"
- **3. Gangadhar Eluru** (April 2018) - "Novel Microfluidic Techniques for Point-of-Care Diagnostics"
- **2. Veerendra Kalyan** (Dec 2016) - "Point-of-Care High-throughput Optofluidic Microscope for Quantitative Imaging Cytometry" *(Recipient of the Best Thesis Medal)*
- **1. Earu Banoth** (Dec 2016) - "Absorption Flow-Cytometry for Point-of-Care Diagnostics"

M.Tech (Research) Students (3 Students):

- **3. Saurav Kumar** (May 2026)- “Development of a Two-LED based Smartphone-Footprint Device for Sickle Cell Anemia and Hemoglobin Estimation”
- **2. Mani Ratnam** (March 2017) - "Fringe Projection Technique for Deformation Measurements under Impact Loading"
- **1. Swetha Murali** (Sept 2016) - "Automation of Microscopic Tests for Cyto-diagnostics using Custom-built Slide Scanner"

M.S. Thesis (3 Students):

- **3. Kartik Kataria** (April 2022) - "Transport of Intensity Equation based Quantitative Phase Imaging of Red Blood Cells"
- **2. Rajas Poorna** (June 2020) - "A Platform for Handheld Ultrafast PCR"
- **1. Priyalaxita Chanda** (April 2017) - "A Hand-Powered Pump for Microfluidic based Point-of-Care Diagnostic Testing"

M.Tech. Projects (2 Students):

- **2. Ashutosh Pati** (June 2018) - "Simultaneous Measurement of Whole-Field In-Plane and Out-Of-Plane Deformations"
- **1. Alekhya Kosaraju** (June 2017) - "Microfluidic Imaging Cytometry-Classification and Enumeration of Blood Cells"

Patents & Intellectual Property

38 Patents / Patent Families / Last updated: May 2026

No.	Patent Title	Applicant(s)	Patent No.	Country	Status
38	Methods And Devices For Paper-Based Lateral Flow Assay Readouts	Biplab Nath, Rajesh Srinivasan, S.S. Gorthi	202641014775	India	**Filed (Feb 2026)**
37	Apparatus And Method For 3D Printing High-Temperature Thermoplastics On Open-Chamber MEAM 3D Printers	Ansuman Sahu, Manish Arora, S.S. Gorthi	202541067663	India	**Filed (Jul 2025)**
36	Methods and Devices for Measuring Parameters from a Sample Present in a Transparent Sample Holder	Biplab Nath, Gangadhar Eluru, S.S. Gorthi	202641004655	India	**Filed (Jan 2026)**
35	Methods to Determine the Presence and Amount of Sickle Haemoglobin, Devices and Kits Thereof	Biplab Nath, Rajesh Srinivasan, Neelam Verma, Sruthi K, Veerendra Kalyan J, S.S. Gorthi	PCT/IN2025/052149	PCT (International)	**Filed — PCT (Dec 2025)**
34	Methods for Measuring Multiple Parameters from a Test Sample and Devices Thereof	Soumyajit Mahato, Neelam Verma, Hemalaxmi Rajavelu, Gangadhar Eluru, S.S. Gorthi	202541134699 / WO/2026/052149	India	**Filed (Dec 2025)**
33	Methods to Estimate Hemoglobin and Hematocrit from Whole Blood, Devices and Kits Thereof	Neelam Verma, Kadheeja Raseena, Soumyajit Mahato, Biplab Nath, Saurav Kumar, Gangadhar Eluru, S.S. Gorthi	202541134706	India	**Filed (Dec 2025)**
32	Methods to Determine the Presence and Amount of Sickle Haemoglobin, Devices and Kits Thereof	Nath B., Srinivasan R., Verma N., Sruthi K., Kalyan J.V., Gorthi S.S.	202441105232 A	India	**Under Examination**
31	Methods for Obtaining Optical Absorbance of a Blood Sample, Kits, and Devices Thereof	Verma N., Nath B., Srinivasan R., Sruthi K., Gorthi S.S.	202441105188 A	India	**Under Examination**
30	An Apparatus, Kit and Methods For Detecting Thalassemia Haemoglobin In A Sample	R. Srinivasan, S.S. Gorthi, Nisanth Nambisson	PCT/IB2023/054972	PCT (International)	-
29	Multidimensional Microfluidic Focusing Device	G. Eluru, S.S. Gorthi	PCT/IN2017/050399 / WO2018/051367	PCT (International)	**Granted — 494353 (Jan 2024)**
28	An Apparatus, Kit and Methods For Detecting Thalassemia Haemoglobin In A Sample (Indian National Phase)	R. Srinivasan, S.S. Gorthi	IN202241027878	India	**Awaiting Examination**
27	Methods for Identifying Haemoglobin S or C in a Biological Sample and Kits Thereof	R. Srinivasan, Eugene, Prateek, Aravind, S.S. Gorthi	202141009024	India	**Granted — 545722 (Jul 2024)**
26	Methods for Identifying Haemoglobin S or C in a Biological Sample and Kits	R. Srinivasan, Eugene, Prateek, Aravind, S.S.	17/684,777 (US20220283188A1)	USA	**Granted**

No.	Patent Title	Applicant(s)	Patent No.	Country	Status
	Thereof	Gorthi			
25	Methods for Identifying Haemoglobin S or C in a Biological Sample and Kits Thereof	R. Srinivasan, Eugene, Prateek, Aravind, S.S. Gorthi	AP/P/2022/013869	ARIPO	**Granted**
24	System for Coating Nanofiber Material on the Optical Fiber Sensor	Vikram S. Raghavan, Radhika N.K., Kavitha, S.S. Gorthi	202141006861	India	**Under Examination**
23	A System for Determination of Parameters Associated with a Sample	R. Poorna, S.S. Gorthi, B.J. Toley	202041017967	India	**Granted — 535826 (Apr 2024)**
22	Portable Energy-Efficient Optothermal Temperature Cycler for Small-Volume Chemical Reactions	R. Poorna, S.S. Gorthi, B.J. Toley	202041016123	India	**Granted — 443074 (Aug 2023)**
21	An Adaptive Sequencing Device	V.V. Sujith, S.S. Gorthi	202041014907	India	-
20	A Portable Fluorescence Readout Device	R. Srinivasan, K.S. Rawat, V.V. Sujith, S.S. Gorthi	202041015152	India	**Granted — 574279 (Nov 2025)**
19	A Microfluidic Cartridge for Smearing Biological Fluid	S. Kandaswamy, V.A.K. Modali, S.S. Gorthi	201941044248	India	**Granted — 354332 (Dec 2020)**
18	Method and System for Performing Microscopic and Biochemical Analysis of a Urine Sample	S. Kandaswamy, V.A.K. Modali, L.R. Arcot, S.S. Gorthi	201841037116	India	-
17	Method and System for Performing Blood Cytology and Biochemical Analysis	S. Kandaswamy, V.A.K. Modali, L.R. Arcot, S.S. Gorthi	201841034366	India	-
16	Supermagnetic Nanoparticle Mediated Water Remediation	S.S. Gorthi, M.R. Gowravarma, V.S. Raghavan, D.J. Naidu	201841049527	India	**Granted — 507884 (Feb 2024)**
15	Superparamagnetic Nanoparticles Mediated Hematological Analysis of Cells	S.S. Gorthi, V.S. Raghavan, R. Srinivasan, N.N. Jadhav	201841035433	India	**Granted — 427492 (Mar 2023)**
14	Apparatus and Method for Microfluidic In-flow Decantation	G. Eluru, S.S. Gorthi	201841014162	India	**Granted — 580478 (Feb 2026)**
13	Multidimensional Microfluidic Focusing Device	G. Eluru, S.S. Gorthi	IN201641031489	India	**Granted — 494353 (Jan 2024)**
12	Multidimensional Microfluidic Focusing Device	G. Eluru, S.S. Gorthi	(Brazil, Australia, New Zealand)	Brazil / Australia / New Zealand	**Granted (Jan 2024)**
11	Methods of Using a Fluorescent Reducing Agent for Nanoparticle Synthesis Leading to Detection of Analyte	S.S. Gorthi, K. Daniel, S. Varun	201641039885	India	-
10	A Method of Using Chemical-Dried Cotton as Platform for Chemical Reactions	S.S. Gorthi, D. Indana, K. Daniel	201641033215	India	**Granted — 517035 (Feb 2024)**

No.	Patent Title	Applicant(s)	Patent No.	Country	Status
9	A Method and Composition for Rapid Formation of Nanorice	S.S. Gorthi, K. Daniel, S. Varun	201641037832	India	-
8	A Real-Time Fiber Bragg Grating Biosensor	S.S. Gorthi, S. Asokan, S. Umesh, R. Srinivasan	6275/CHE/2015	India	**Granted — 545583 (Jul 2024)**
7	A Real-Time Sample Classifier	S.S. Gorthi	4957/CHE/2015	India	**Granted — 529493 (Mar 2024)**
6	Real-Time Sensing of Analytes by On-Chip Interference-Synthesis of Noble Metal Nanoparticles	S.S. Gorthi, S.C.G.K. Daniel, L.A. Nirupa	4882/CHE/2015	India	**Granted — 379469 (Oct 2021)**
5	A Microfluidic Cartridge	S.S. Gorthi, V.K. Jagannadh, V. Gupta	4229/CHE/2015	India	**Granted — 426980 (Mar 2023)**
4	Microfluidic On-Chip Biosynthesis of Nanoparticles at Room-Temperature	S.S. Gorthi, S.C.G.K. Daniel, L.A.J. Nirupa	3649/CHE/2015	India	**Granted — 402094 (Jul 2022)**
3	High Throughput Optofluidic Hyperimaging	S.S. Gorthi	3432/CHE/2015	India	**Granted — 376806 (Sep 2021)**
2	A Microscopy System and A Method for Analyzing Fluids	S.S. Gorthi, V.K. Jagannadh	PCT/IB2015/053581 / WO2015173774 A3	Europe	**Granted**
1	An Automated Portable Microfluidic Microscopy System and A Method Thereof	S.S. Gorthi, V.K. Jagannadh	2432/CHE/2014	India	**Granted — 406367 (Sep 2022)**

Note: Patents 12, 13, and 29 represent the same Multidimensional Microfluidic Focusing Device invention filed across different countries/phases.

Major Funded Projects (Complete List)

Current Major Projects:

- **Comprehensive Healthcare-Program on Anemia and Sickle-Cell Disease for Adivasis in Karnataka (Project CHAnDAna)**
  Role: Principal Investigator
  Funding Agency: IndianOil Corporation Limited CSR Initiative of National Importance (IOCL-IISc-GoK)
  Duration: March 2024 - August 2026
  Amount: ₹1800 Lakhs

- **Ultrafast Point-of-Care PCR for Detection & Management of Hemoglobinopathies**
  Role: Principal Investigator
  Project: C4 of Project PRAMAN (Program for Research and Application in Micro and Nanotechnologies) at CeNSE
  Funding Agency: Ministry of Electronics and Information Technology (MeitY) + ShanMukha Innovations (SMI)
  Duration: November 2024 - November 2028
  Amount: ₹107 Lakhs (MeitY) + ₹30 Lakhs (SMI) = ₹137 Lakhs Total

Completed Major Projects (2016-2022):

- **Microfluidic Point-of-Care System for Molecular Diagnostics (CeNSE Phase-III)**
  Role: Principal Investigator
  Funding Agency: Ministry of Electronics and Information Technology (MeitY) and DST
  Duration: April 2018 - April 2022
  Amount: ₹93 Lakhs

- **Clinical Validation of Optofluidic Microscope and Portable Slide Profiler**
  Role: Principal Investigator
  Funding Agency: BIRAC Contract Research Services
  Duration: Two Years
  Amount: ₹73.96 Lakhs

- **Portable device for multiplexed detection of water-borne pathogens and heavy metals**
  Role: Principal Investigator
  Funding Agency: University of Plymouth, Global Challenges Research Fund - UK
  Duration: July 2019 - July 2021
  Amount: ₹40 Lakhs

- **Detection of Plant pathogenic fungi using Handheld PCR**
  Role: Principal Investigator
  Funding Agency: Innovation Technology Development and Deployment - DST
  Duration: May 2019 - May 2021
  Amount: ₹39.97 Lakhs

- **Handheld Chemical Diagnostic Device with Replaceable Cartridge for Creatinine Estimation**
  Role: Principal Investigator
  Funding Agency: Biomedical Device and Technology Development - DST
  Duration: December 2017 - November 2019
  Amount: ₹25 Lakhs

- **Simple and Highly Sensitive Chip-based Point-of-Care Diagnostic Tool for Clinical Diagnosis of Malaria**
  Role: Principal Investigator
  Funding Agency: Infosys Foundation (Part funding for CIDR Infrastructure & Research)
  Duration: January 2016 - December 2020
  Amount: ₹20 Lakhs

COVID-19 Response Projects (2020):

- **Mobile Molecular Testing Labs for CoViD-19**
  Role: Principal Investigator
  Funding Agency: SBI Foundation, CSR project
  Duration: April - June 2020
  Amount: ₹65 Lakhs

- **Portable PCR System for CoViD-19 Testing**
  Role: Principal Investigator
  Funding Agency: CITY Bank, CSR project
  Duration: September 2020 - June 2021
  Amount: ₹85 Lakhs

- **Fabrication & Equipping Mobile-Hub of MITR Labs**
  Role: Principal Investigator
  Funding Agency: United Way Bengaluru, CSR project
  Duration: October - December 2020
  Amount: ₹72 Lakhs

International Collaborations:

- **ARREST-TB: Accurate, Rapid, Robust and Economical diagnostic technologies for Tuberculosis**
  Role: Principal Investigator
  Funding Agency: EU-India Co-funding Call, DBT
  Duration: 2019-2021
  Amount: ₹20 Lakhs

Publications (Complete List - 96 Papers)

Total Publications: 96 papers in peer-reviewed international journals (SCI Journals, year-wise descending order)

2025:

- **96.** Annu Niraj, Manish Arora, Sai Siva Gorthi. "Laser Triangulation-Based Profilometer to Measure the Warpage During." *Advances in Biophotonics, Nanofabrication, Optical Metrology and Nonlinear and Ultrafast Photonics: Proceedings of PHOTONICS 2023, Volume 3*, 1242, 197, 2025.
- **95.** Ansuman Sahu, Manish Arora, Sai Siva Gorthi. "Effect of a Compliant Build Platform on the Warpage in Material Extrusion Additive Manufacturing." *Procedia CIRP*, 134, 461-466, 2025.

2024:

- **94.** B Prathima, Vikram Srinivasa Raghvan, Swati Soni, Sai Siva Gorthi, Sivakumar Babu GL. "Sulfide-enhanced carboxymethyl cellulose stabilised nano zero-valent iron for chromium (VI) mitigation in water: Evidence from batch and column studies." *Journal of Water Process Engineering*, 66, 105832, 2024.
- **93.** Ansuman Sahu, Manish Arora, Sai Siva Gorthi. "Mechanisms for Downward and Upward Warp Deformation of FDM 3D-Printed Parts." *International Conference on Industry 4.0 and Advanced Manufacturing*, 137-146, 2024.
- **92.** Sai Siva Gorthi, Aamir Sohail, Rajesh Srinivasan, Nityasri Sankha Narasimhamurthy. "Effectiveness of FFR vs. angiography guided percutaneous coronary interventions (PCIs) in patients with stable coronary artery disease." 2024.

2023:

- **91.** Nashath Kalangadan, Aarcha Shanmugha Mary, Kaushik Mani, Biplab Nath, David Jenkins, Sai Siva Gorthi, Kaushik Rajaram. "Repurposing ivermectin and ciprofloxacin in nanofibers for enhanced wound healing and infection control against MDR wound pathogens." *Journal of Drug Delivery Science and Technology*, 90, 105166, 2023.

2022:

- **90.** R Srinivasan, V.R. Eugene Christo, Radhika NK, Prateek K, Aravind V, Nisanth K.M. Nambison & SS Gorthi. "Optical Absorbance-based Rapid Test for the Detection of Sickle Cell Trait and Sickle Cell Disease at the Point-of-Care." *Spectrochimica Acta A: Molecular and Biomolecular Spectroscopy*, 279, 121394, 2022.

- **89.** SK Honnali, VS Raghavan, R Ashwath, G Saravanavel, KR Gunasekhar, S Sambandan, S.S.Gorthi, B O'Driscoll & Jenkins D. "Aptamer functionalized ZnO thin-film transistor based multiplexed detection of Lead and E. coli in water." *IEEE Sensors* (Accepted), 2022.

- **88.** M Puri, H Kaur Brar, E Madan, R Srinivasan, K Rawat, S.S. Gorthi, G. Kumari, R. Sah, S.B. Ojha, S. Panigrahi, G. Dhangadamajhi, R. Muthuswami, Shailja Singh & R. Madhubala. "Rapid diagnosis of Plasmodium falciparum malaria using a point-of-care loop-mediated isothermal amplification device." *Frontiers in cellular and infection microbiology*, 12, 19, 2022.

- **87.** M Puri, HK Brar, E. Madan, R Srinivasan, K. Rawat, S.S.Gorthi, G. Kumari, R. Sah, S.b. Ojha, S. Panigrahi, G. Dhangadamajhi, R. Muthuswami, S. Singh & R. Madhubala. "Rapid diagnosis of Leishmania infection with a portable loop-mediated isothermal amplification device." *Journal of biosciences*, 46(4), 1-15, 2021.

2021:

- **86.** S Srivastava, R Srinivasan, Nishanth KM Nambison & SS Gorthi. "Diagnosis of sickle cell anemia using AutoML on UV-Vis absorbance spectroscopy data." *arXiv preprint* arXiv:2111.12711, 2021.
- **85.** A.S. Mary, V.S. Raghavan, S. Kagula, V. Krishnakumar, M. Kannan, S.S.Gorthi, and Kaushik Rajaram. "Enhanced in-vitro wound healing using PVA/B-PEI nanofiber mats: a promising wound therapeutic agent against ESKAPE and opportunistic pathogens." *ACS Applied Bio Materials Journal*, 4(12), 8466-8476, 2021.
- **84.** Puri M., Brar H.K., Mittal N., E. Madan, R. Srinivasan, K. Rawat, S. Moulik, M. Chatterjee, S.S.Gorthi, R. Muthuswami & R. Madhubala. "Rapid diagnosis of Leishmania infection with a Portable Loop-Mediated Isothermal Amplification Device." *Journal of Biosciences*, 46(4), 46-92, 2021.
- **83.** J.K. Mandapalli, V. Ravi, S.S.Gorthi, Subrahmanyam Gorthi, and Rama Krishna Gorthi. "Single-Shot Circular Fringe Projection for Profiling of Objects having Surface Discontinuities." *Journal of the Optical Society of America A (JOSA-A)*, 38(10), 1471-1482, 2021.
- **82.** Radhika NK, V. Kamali R. and S.S. Gorthi. "A rapid aptamer-based fluorescence assay for the detection of lipopolysaccharides using SYBR Green I." *Journal of Luminescence: The Journal of Biological and Chemical Luminescence*, 36, 1632-1637, 2021.
- **81.** P. Katare and S.S. Gorthi. "Recent Technical Advances in Whole Slide Imaging (WSI) Instrumentation." *Journal of Microscopy*, 284(2), 103-117, 2021.
- **80.** P.P. Prasobhkumar, V. Aravind, C R Francis and S.S. Gorthi. "Pebrine diagnosis using quantitative phase imaging and machine learning." *Journal of Biophotonics*, 14(8), e202100044, 2021.
- **79.** K. Sonu, S.H. Puttaiah, V.S. Raghavan and S.S. Gorthi. "Photocatalytic degradation of MB by TiO2: studies on recycle and reuse of photocatalyst and treated water for seed germination." *Environmental Science and Pollution Research*, 28, 48742–48753, 2021.
- **78.** Prateek K., N. Awasthi, A. Venukumar and S.S. Gorthi. "Low-cost, continuous motion imaging, computationally augmented whole slide imager for digital pathology." *IEEE JSTQE (Journal of Selected Topics in Quantum Electronics)*, 27(4), 6801907, 2021.
- **77.** V.S. Raghavan, B O'Driscoll, J.M. Bloor, Bing Li, P. Katare, J. Sethi, S.S. Gorthi & David Jenkins. "Emerging Graphene-based Sensors for the Detection of Food Adulterants and Toxicants." *Journal of Food Chemistry*, 355, 129547, 2021.
- **76.** K.B. Srinivasan, V.S. Raghavan, M. Shorie, P. Sabherwal, S.S. Gorthi, S. Asokan & A.K. Sood. "Enhanced Optical Sensitivity of PVA-rGO Electrospun Nanofiber Coated Etched Fiber Bragg Grating Sensor for Detection of Myoglobin- a Cardiac Biomarker." *Advanced Photonics Research*, 2(7), 2021.
- **75.** N.K.Radhika, & S.S. Gorthi. "dsDNA-templated fluorescent copper nanoparticles for the detection of lipopolysaccharides." *RSC's Analytical Methods*, 13(2), 186-191, 2021.
- **74.** L. Arcot, K. Srinivasan, A. Modali, S.S.Gorthi, D. Tathagato. "Developing microscopy based microfluidic SLS assay for on-chip hemoglobin estimation." *AIP Advances*, 11(2), 025337, 2021.

- **73.** B O'Driscoll, VS Raghavan, T Bungon, P Davey, T Whitley, S Awan, SS Gorthi. "Aptamer functionalisation of back-gated graphene field effect transistors for Pb2+ sensing." *Eng. Proc*, 3, 2021.
- **72.** B. S. Kavitha, N.K.Radhika, S.S. Gorthi & S. Asokan. "Etched Fiber Bragg Grating Sensor for quantification of DNA." *IEEE Sensors Journal*, 21(2), 1588-1595, 2021.

2020:

- **71.** N. Awasthi, P. Katare, S.S.Gorthi and P. K. Yalavarthy. "Guided filter based image enhancement for focal error compensation in low-cost automated histopathology microscopic system." *Journal of Biophotonics*, 13, e202000123, 2020.
- **70.** P. Katare and S.S.Gorthi. "Microwave irradiation based rapid curing of PDMS for microfluidic application." *Microfluidics and Nanofluidics*, 24, 46, 2020.
- **69.** N.K. Radhika, B Kavitha, S. Asokan and S.S. Gorthi. "Detection of copper nanoparticles templated by DNA using etched Fibre Bragg Grating sensor." *IEEE Sensors Journal*, 20(16), 9179-9186, 2020.
- **68.** N.K. Radhika, Aravind V., S.S. Gorthi. "Handheld fluorometer for in-situ melamine detection via interference synthesis of dsDNA-templated copper nanoparticles." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 235, 118304, 2020.
- **67.** G Eluru, JV Adhikari, P Chanda, S.S. Gorthi. "Hand-Powered Elastomeric Pump for Microfluidic Point-of-Care Diagnostics." *Micromachines*, 11(1), 67, 2020.
- **66.** G Eluru, P Nagendra, S.S. Gorthi. "Microfluidic In-Flow Decantation Technique Using Stepped Pillar Arrays and Hydraulic Resistance Tuners." *Micromachines*, 10(7), 471, 2019.

2019:

- **65.** P.P. Prasobhkumar, C.R. Francis, S.S. Gorthi. "Cocoon quality assessment system using vibration impact acoustic emission processing." *Engineering in Agriculture, Environment and Food*, 12(4), 556-563, 2019.
- **64.** M Ratnam, M Saxena, S.S. Gorthi. "Circular fringe projection technique for out-of-plane deformation measurements." *Optics and Lasers in Engineering*, 121, 369-376, 2019.
- **63.** M.Saxena, V.K. Jagannadh & S.S.Gorthi. "Throughput enhancement in handheld fluorescence imaging flow cytometry using coded excitation." *Journal of Instrument Society of India*, 49, 49, 2019.
- **62.** NK Radhika, S.S. Gorthi. "Enhancement of the fluorescence properties of double stranded DNA templated copper nanoparticles." *Materials Science and Engineering C*, 98, 1034-1042, 2019.
- **61.** PP Prasobhkumar, CR Francis, S.S. Gorthi. "Automated quality assessment of cocoons using a smart camera based system." *Engineering in Agriculture, Environment and Food*, 11(4), 202-210, 2018.

2018:

- **60.** Swetha M, Adhikari J.V., Jagannadh V.K. & S.S. Gorthi. "Continuous Stacking Computational Approach Based Automated Microscope Slide Scanner." *Review of Scientific Instruments*, 89, 23701, 2018.
- **59.** Gopakumar G., Murali S., S.S. Gorthi & Subrahmanyam G.R.K.S. "Convolutional Neural Network-based Malaria Diagnosis from Focus-stack of Blood Smear Images Acquired using Custom-built Slide Scanner." *Journal of Biophotonics*, 11(3), 2018.
- **58.** S.Varun, S.C.G. Kiruba Daniel, S.S. Gorthi. "Rapid Sensing of Melamine in Milk by Interference Green Synthesis of Silver Nanoparticles." *Materials Science & Engineering C*, 74, 253-258, 2017.

2017:

- **57.** Chaturvedi A, Nagaraj SK, S.S. Gorthi, Seelamantula CS. "An Efficient Microscale Technique for Determining the Erythrocyte Sedimentation Rate." *SLAS Technology*, 22(5), 566-572, 2017.
- **56.** Gopakumar G, Hari Babu K, Mishra D, S.S. Gorthi, Sai Subrahmanyam GR. "Cytopathological Image Analysis using Deep Learning Networks in Microfluidic Microscopy for Label-free Leukaemia Cell-lines." *Journal of the Optical Society of America A*, 34(1), 111-12, 2017.
- **55.** S.C.G. Kiruba Daniel, Lourdes Albina Nirupa Julius, S.S. Gorthi. "Microfluidics based Handheld Nanoparticle Synthesizer." *Journal of Cluster Science*, 28, 1201, 2017.
- **54.** K. Daniel, L.A. Nirupa and S.S. Gorthi. "Instantaneous Detection of Melamine by Interference Biosynthesis of Silver Nanoparticles." *Sensors & Actuators: B (Chemical)*, 238, 641-650, 2017.
- **53.** A. Chaturvedi and S.S. Gorthi. "Automated Blood-Sample Preparation Unit (ABSPU) for Portable Microfluidic Flow Cytometry." *Journal of Laboratory Automation*, 22(1), 73-80, 2017.
- **52.** V.K. Jagannadh, G. Gopakumar, G.R.K.S.S. Manyam and S.S. Gorthi. "Microfluidic Microscopy-assisted Label-free Approach for Cancer Screening." *Medical & Biological Engineering & Computing*, 55(5), 711-718, 2017.
- **51.** A. Pathak, J. Borana, J.V. Adhikari and S.S. Gorthi. "Indicator Impregnated Agarose Films for Colorimetric Measurement of pH." *Journal of Laboratory Automation*, 22(1), 81-88, 2017.
- **50.** R. Srinivasan, S. Umesh, S. Murali, S. Asokan and S.S. Gorthi. "Bare Fiber Bragg Grating Immunosensor for Real-Time Detection of Escherichia Coli Bacteria." *Journal of Biophotonics*, 10(2), 224-230, 2017.
- **49.** S. Gayathri, G.S. Varma, G. Singh, B.N. Shivananju, S. Umapathy, S.S. Gorthi, and S. Asokan. "In-situ Monitoring of photo-striction in chalcogenide glass film using fiber Bragg grating Sensors." *International Journal of Optomechatronics*, 11(1), 27-35, 2017.

2016:

- **48.** E Banoth, V K Kasula, and S.S. Gorthi. "Portable optofluidic absorption flow analyzer for quantitative malaria diagnosis from whole blood." *Applied Optics*, 55(30), 8637-8643, 2016.
- **47.** E. Gangadhar, L. A. Nirupa & S.S. Gorthi. "Single-Layer Microfluidic Device to Realize Hydrodynamic 3-D Flow Focusing." *Lab on a Chip*, 16, 4133-4141, 2016.
- **46.** V.K. Jagannadh, M.D. Mackenzie, P.Pal, A.K.Kar & S.S. Gorthi. "Slanted Channel Microfluidic Chip for 3D Fluorescence Imaging of Cells in Flow." *Optics Express*, 24(19), 22144-158, 2016.
- **45.** B. Medhi, G.M. Hegde, S.S. Gorthi, K.P.J.Reddy, D. Roy and R.M. Vasu. "Improved Quantitative Visualization of Hyper-velocity Flow through Wavefront Estimation based on Shadow-Casting of Sinusoidal Gratings." *Applied Optics*, 55(22), 6060-6071, 2016.
- **44.** V.K. Jagannadh, B.P. Bhat, L.A. Nirupa and S.S. Gorthi. "High-throughput Miniaturized Microfluidic Microscopy with Radially Parallelized Channel Geometry." *Analytical and Bioanalytical Chemistry*, 408, 1909-1916, 2016.
- **43.** M. Saxena, N. Jayakumar and S.S. Gorthi. "Handheld Fluorescence Microscopy based Flow Analyzer." *Journal of Fluorescence*, 26(2), 631-638, 2016.
- **42.** G. Gopakumar, V.K. Jagannadh, S.S. Gorthi and G.R.K.S. Subrahmanyam. "Framework for Morphometric Classification of Cells in Imaging Flow Cytometry." *Journal of Microscopy*, 216(3), 307-319, 2016.
- **41.** L.A. Nirupa, V.K. Jagannadh, I.J. Micheal, R. Srinivasan and S.S. Gorthi. "Design and Validation of On-chip Planar Mixer based on Advection and Viscoelastic Effects." *BioChip Journal*, 10(1), 16-24, 2016.
- **40.** E. Banoth, V.K. Kasula, V.K. Jagannadh and S.S. Gorthi. "Optofluidic single-cell absorption flow analyzer for point-of-care diagnosis of malaria." *Journal of Biophotonics*, 9(6), 610-618, 2016.
- **39.** E. Banoth, V.K. Jagannadh and S.S. Gorthi. "Single-Cell Optical Absorbance Characterization with High-Throughput Microfluidic Microscopy." *IEEE Journal of Selected Topics in Quantum Electronics*, 22(3), 6800106, 2016.
- **38.** V.K. Jagannadh, R.S. Murthy, R. Srinivasan and S.S. Gorthi. "Automated quantitative cytological analysis using portable microfluidic microscopy." *Journal of Biophotonics*, 9(6), 586-595, 2016.

2015:

- **37.** V.K. Jagannadh, R.S. Murthy, R.Srinivasan and S.S. Gorthi. "Field-Portable Microfluidics based Imaging Flow Cytometer." *IEEE Journal of Lightwave Technology*, 33(16), 3469-3474, 2015.
- **36.** M. Saxena, G. Eluru and S.S Gorthi. "Structured Illumination Microscopy." *Advances in Optics and Photonics*, 7(2), 241-275, 2015.
- **35.** R. Waghmare, S.S. Gorthi, G.R.K.S. Subrahmanyam, and D. Mishra. "Signal Tracking Approach for Phase and Phase Derivative Estimation in Digital Holographic Interferometry using Extended Kalman Filter." *International Journal of Information Processing*, 9(2), 25-35, 2015.
- **34.** V.K. Jagannadh, J.V. Adhikari, and S.S. Gorthi. "Automated cell viability assessment using a microfluidics based portable imaging flow analyser." *Biomicrofluidics*, 9(2), 24123, 2015.
- **33.** Eluru G., R.Srinivasan and S.S. Gorthi. "Deformability Measurement of Single-Cells at High-Throughput With Imaging Flow Cytometry." *IEEE Journal of Lightwave Technology*, 33(16), 3745-3480, 2015.
- **32.** V.K. Jagannadh, M.D. Mackenzie, P.Pal, A.K.Kar and S.S. Gorthi. "Imaging Flow Cytometry with Femtosecond Laser Micromachined Glass Microfluidic Channels." *IEEE Journal of Selected Topics in Quantum Electronics*, 21(4), 6800106, 2015.
- **31.** V.K. Jagannadh, R.Srinivasan and S.S. Gorthi. "A semi-automated, field-portable microscopy platform for clinical diagnostic applications." *AIP Advances*, 5(8), 84902, 2015.

2014:

- **30.** E. Banoth, V. K. Jagannadh, R. Srinivasan and S.S. Gorthi. "Single-cell Transmittance Measurements on Blood-Smear for the Detection of Malaria." *Technology Letters*, 1(9), 29-33, 2014.
- **29.** R. Waghmare, D. Mishra, G.R.K.S.Subrahmanyam E. Banoth & S.S. Gorthi. "Signal Tracking Approach for Phase Estimation in Digital Holographic Interferometry." *Applied Optics*, 53, 4150-4157, 2014.
- **28.** R. Kulkarni, S.S. Gorthi, and P. Rastogi. "Measurement of In-plane and Out-of-Plane Displacements and Strains using Digital Holographic Moire." *Journal of Modern Optics*, 61, 755-762, 2014.

2013:

- **27.** S.S. Gorthi, D. Schaak, E. Schonbrun. "Fluorescence Imaging of Flowing Cells using a Temporally Coded Excitation." *Optics Express*, 24(4), 5461-5170, 2013.

2012:

- **26.** S.S.Gorthi & E. Schonbrun. "Phase Imaging Flow Cytometry using a Focus-Stack Collecting Microscope." *Optics Letters*, 37, 707-709, 2012.
- **25.** E. Schonbrun, S.S. Gorthi & D. Schaak. "Microfabricated Multiple Field of View Imaging Flow Cytometry." *Lab on a Chip*, 12, 268-273, 2012.
- **24.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Detection of defects from fringe patterns using a pseudo Wigner-Ville distribution based method." *Optics and Lasers in Engineering*, 50, 1059-1062, 2012.
- **23.** D. Ambrosini, D. Paoletti, R. Di Biase, P. Rastogi & S.S. Gorthi. "Role of Data Processing in Measuring Temperature Gradients with DOE Schardin's Schlieren#2." *Optics and Lasers in Engineering*, 50, 1069-1074, 2012.
- **22.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Estimation of multiple phases from a single fringe pattern in digital holographic interferometry." *Optics Express*, 20, 1281-1291, 2012.

2011:

- **21.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Simultaneous measurement of in-plane and out-of-plane displacement derivatives using dual-wavelength digital holographic interferometry." *Applied Optics*, 50, H16-H21, 2011.
- **20.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Simultaneous multidimensional deformation measurements using digital holographic moiré." *Applied Optics*, 50, 4189-4197, 2011.
- **19.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Estimation of dynamically varying displacement derivatives using fringe projection technique." *Applied Optics*, 50, 282-286, 2011.
- **18.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Three dimensional shape measurement using high-order instantaneous moments based fringe projection method." *Optics & Laser Technology*, 43, 40-44, 2011.

2010:

- **17.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Estimation of displacement derivatives in digital holographic interferometry using a two-dimensional space-frequency distribution." *Optics Express*, 18, 18041-18046, 2010.
- **16.** S.S. Gorthi, G. Rajshekhar & P. Rastogi. "Investigations to realize a computationally efficient implementation of the high-order instantaneous moments based fringe analysis method." *Optical Engineering*, 49, 01-Apr, 2010.
- **15.** S.S. Gorthi & P. Rastogi. "Phase estimation in digital holographic interferometry using cubic phase function based method." *Journal of Modern Optics*, 57, 595-600, 2010.
- **14.** G. Rajshekhar, S.S. Gorthi & P. Rastogi. "Strain estimation in digital holographic interferometry using piecewise polynomial phase approximation based method." *Optics Express*, 18, 560-565, 2010.
- **13.** S.S. Gorthi & P. Rastogi. "Fringe Projection Techniques: Whither we are?" *Optics and Lasers in Engineering*, 48(2), 133-140, 2010.
- **12.** G. Rajshekhar, S.S. Gorthi & P. Rastogi. "Estimation of phase derivative using adaptive window spectrogram." *Journal of Optical Society of America A*, 27, 69-75, 2010.

2009:

- **11.** G. Rajshekhar, S.S. Gorthi & P. Rastogi. "An adaptive window Wigner-Ville distribution based method to estimate phase derivative from optical fringes." *Optics Letters*, 34, 3151-3153, 2009.
- **10.** S.S. Gorthi & P. Rastogi. "Simultaneous measurement of displacement, strain and curvature in digital holographic interferometry using high- order instantaneous moments." *Optics Express*, 17, 17784-17791, 2009.
- **9.** G. Rajshekhar, S.S. Gorthi & P. Rastogi. "Strain, curvature and twist measurements in digital holographic interferometry using pseudo Wigner-Ville distribution based method." *Review of Scientific Instruments*, 80, 93107, 2009.
- **8.** G. Rajshekhar, S.S. Gorthi & P. Rastogi. "Polynomial Wigner-Ville distribution based method for direct phase derivative estimation from optical fringes." *Journal of Optics A: Pure and Applied Optics*, 11, 125402, 2009.
- **7.** S.S. Gorthi & P. Rastogi. "Improved high-order ambiguity function method for the estimation of phase from interferometric fringes." *Optics Letters*, 34, 2575-2577, 2009.
- **6.** S.S. Gorthi & P. Rastogi. "Windowed high-order ambiguity function method for fringe analysis." *Review of Scientific Instruments*, 80, 73109, 2009.
- **5.** S.S. Gorthi & P. Rastogi. "Estimation of phase derivatives using discrete chirp- Fourier transform based method." *Optics Letters*, 34, 2396-2398, 2009.
- **4.** S.S. Gorthi & P. Rastogi. "Discrete chirp Fourier transform based analysis of reconstructed interference fields in digital holographic interferometry." *Journal of Modern Optics*, 56, 1317-1322, 2009.
- **3.** S.S. Gorthi & P. Rastogi. "Analysis of reconstructed interference fields in digital holographic interferometry using polyomial phase transform." *Measurement Science and Technology*, 20, 01-Jun, 2009.
- **2.** S.S. Gorthi & P. Rastogi. "Numerical analysis of fringe patterns recorded in holographic interferometry using highorder ambiguity function." *Journal of Modern Optics*, 56, 949-954, 2009.
- **1.** S.S. Gorthi & P. Rastogi. "Piecewise polynomial phase approximation approach for the analysis of reconstructed interference fields in digital holographic interferometry." *IoP's Journal of Optics*, 11, 01-Jun, 2009.

Books/Reports/Chapters/General Articles

S.No	Title	Author's Name	Publisher	Year
4	**"Nanomaterials and Devices for the Provision of Safe Drinking Water in Rural Communities"** in the book of "Contaminants of Emerging Concerns and Reigning Removal Technologies"	David Jenkins, Jonathan Bloor, Bing Li, Vikram S, Richard D.H., Shivaraju H.P., Awadesh N.J., S.S. Gorthi	CRC Press Book	2022
3	**Structured Illumination Microscopy**	M. Saxena, G. Eluru and S.S Gorthi	OSA's Advances in Optics and Photonics	2015
2	**"Local Polynomial Phase Modeling and Estimation"** in the book of "Phase Estimation in Optical Metrology"	G. Rajshekhar, S.S. Gorthi, and P. Rastogi	CRC Press Book	2014
1	**Fringe Projection Techniques: Whither we are?**	S.S. Gorthi & P. Rastogi	Elsevier's Optics and Lasers in Engineering	2010

Note: Couple of more Chapters are in the Final Stage

Any Other Information

Sai Siva Gorthi is working as a Professor in the Department of Instrumentation and Applied Physics at Indian Institute of Science (IISc), Bangalore. Prior to joining IISc, he was a post-doctoral fellow of Rowland Institute at Harvard University (2011-2012), where he had developed multiple imaging modalities for recording information of fast flowing cells in microfluidic devices. He obtained his doctorate in Optical Metrology from EPFL (Swiss Federal Institute of Technology), Lausanne, Switzerland in 2010.

Currently at IISc, part of his group is focusing on the development of various Point-of-Care Diagnostic Platform Technologies with the combination of Optics, Microfluidics and Electronics. His research interests include Optofluidics, Flow Cytometry, Computational Imaging and Optical Metrology. He has published over 96 papers in peer-reviewed international journals in these areas, and filed 36 patent applications (all granted).

Under the Faculty Entrepreneurship Programme of IISc, he founded Shanmukha Innovations Pvt. Ltd. in 2016 to develop indigenous Optical Instruments. Currently he is establishing a Regional Resource Center of HTAIn (Health Technology Assessment in India) at IISc.

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Funding Information: http://iap.iisc.ernet.in/~saisiva.gorthi/funding.html

Consultancy and Startup Activities (Past Five Years)

S. No	Title	Sponsoring Agency	Period	Amount (₹ Lakhs)
11	**Mobile Diagnostic Labs for CoVID-19: Returnable grant for ShanMukha Innovations Pvt Ltd. From DST**	Center for Augmenting WAR Against Covid-19 Health crisis (CAWACH)	6 months (Sept 2020-Feb 2021)	150
10	**ARREST-TB: Accurate, Rapid, Robust and Economical diagnostic technologies for Tuberculosis**	EU-India Co-funding Call, DBT	2 years (2019-2021)	20
9	**ShanMukha Innovations Pvt Ltd has been Awarded as Winner of ELEVATE Call-2 (FY 2019-20)**	Karnataka Innovation & Tech Society, GoK	2 years (2019-2021)	20
8	**Advice on the Development of a Microfluidic Cartridge for Urinalysis**	SigTuple Technologies Pvt Ltd	6 months (Sept 2020 – Feb 2021)	5
7	**Mentoring in PoC Generation of 3D Flow-Focusing for Application Specific Licensing of a Patent (Trial License Fee)**	Jiva Sciences Pvt. Ltd.	6 months (Apr 2017 – Sept 2017)	6.0
6	**Testing and Certification of Laser Window Glass for JAGUAR Aircraft**	Hindustan Aeronautics Limited (HAL)	2 months (Jul 2017)	1.33
5	**Advice on R & D related to Lab-on-Chip based Semen Analysis**	Crea Conceptions Pvt. Ltd.	3 months (Feb 2016 – Apr 2016)	2.46
3	**Advice on R & D related to Microfluidic Real-time Cell Sorting**	Jiva Sciences Pvt. Ltd.	3 months (Dec 2015 – Feb 2016)	2.45
2	**Advice on R & D related to Lab-on-Chip based soil-Health testing instrument**	Jiva Sciences Pvt. Ltd.	2 months (Apr 2016 – May 2016)	1.72
1	**Advice on Fabrication of Three dimensional Microfluidic Devices**	Jiva Sciences Pvt. Ltd.	3 months (May 2016-Jul 2016)	2.46

Entrepreneurship Activities:

- **Founder, Shanmukha Innovations Pvt. Ltd.** (2016) - Under Faculty Entrepreneurship Programme of IISc for developing indigenous Optical Instruments
- **Principal Research Scientist, SigTuple Technologies** (July 2018 - July 2019) - Industry collaboration for advanced diagnostic technologies

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