Academic CV – Mr. Arvind Gurusekaran

Personal information

Name: **Arvind Gurusekaran**
Place of birth:
Date of birth:
Nationality:
Address:
Telephone numbers:

- Mobile:
- Private:
- Office:

E-Mail:

Education since leaving school

- **2012 – B.Tech. in Information Technology**, Sathyabama University (India). Thesis Title: “Energy efficient opportunistic routing for wireless sensor networks”, Department of Information Technology Grade: First Class.

- **2016 – M.Tech in Printing and Media Technology, Manipal University,India and M.Sc in Print and Media Technology, Technische Universität Chemnitz, Germany**. The **dual masters degree** course was such that first 2 semesters was held in Manipal University in India and the last 2 semesters including the master thesis was conducted in TU Chemnitz, Germany to obtain the M.Tech and M.Sc degrees from both the universities respectively. Thesis Title: "Inkjet printing of conductive patterns on textiles for wearable applications” Supervisors: Prof. Reinhard Baumann Technische Universität Chemnitz, Department of Digital Printing
  M.Tech: Grade: 8.0/10 CGPA
  M.Sc: Grade: Satisfactory

- Ongoing – PhD in Advanced Systems Engineering, Free University of Bozen - Bolzano. Supervisors: Prof. Luisa Petti, Prof. Paolo Lugli. Free University of Bozen - Bolzano, Faculty of Engineering Winner of fellowship by Thales Alenia Space – Italy.

Present appointment

- PhD student (Advanced Systems Engineering)
- October 2020
- Doctoral student
- Free University of Bozen - Bolzano

Key objectives

- Development of coatings and components for space applications
- Developed additively manufactured antennas on regular and irregular surfaces for space applications **(published, IEEE EDTM 2022)**
- Developed stimuli responsive hinges for thermal control systems which actuate with heat as the stiumulus **(accepted, IEEE Metroaerospace 2023)**
- Developed printed heaters for direct provision of heat to hinges
- During my period abroad in Helmholz Zentrum Dresden Rossendorf (HZDR) in Dresden, Germany, Soft robots that are conductive, magnetic and self-healing made of polymeric composite ~~was~~ were designed and fabricated.

Professional experience

Chronological list of all previous employments

From / to	Job title	Name of academic Institution	Academic level	responsibilities
April 2016 - June 2017	Production Supervisor	Syndicate Printers Limited, India	M.Sc	Supervision of printed antennas and RFID line
July 2017 - June 2019	Project Engineer	National Center for Flexible Electronics, Indian Institute of Technology, Kanpur, India	M.Sc	Optimization of printed OLEDs, inkjet printing of antennas. Worked on roll to roll developed for technology transfer to companies
June 2019 – Sep 2020	Assistant Manager (Printed Electronics)	Classic Stripes Private Limited, India	M.Sc	Development of electroluminescent displays and force sensing resistor for automobile applications

Participation in exhibitions (where applicable)

- Presented poster titled 'Printed heaters for shape memory effect' Authored by: *Arvind Gurusekaran*, Manuela Ciocca, Hugo De Souza Oliveira, Niko Münzenrieder, Luisa Petti, Paolo Lugli, Makers Faire 2022 – The European Edition, 09.10.2022, Rome, Italy.
- Presentation on 'Development of coatings and components for space applications' at Thales Alenia Space – Italy facility for PhD Day, 28.09.2022, Rome, Italy

Memberships

- Student member of Institute of Electrical and Electronics Engineers (IEEE)
- Student member of IEEE Electron Devices Society (EDS)

Research and scholarships

- Nominated by Prof. Luisa Petti (Recommended by Prof. Paolo Lugli and Dr. Manuela Ciocca) for Electron Devices Society (EDS) student fellowship award 2023

Publications

- Chapters in book:

  Inkjet-printing of conductive tracks on non-woven flexible textile fabrics for wearable applicationsInkjet-printing of conductive tracks on non-woven flexible textile fabrics for wearable applications' Kalyan Y. Mitra, Dana Weiss, Monique Helmert, ***Arvind Gurusekaran***, Reinhard Baumann United Scholars Publication · Jul 1, 2016, Scientific article published in the book "Flexible and Wearable Electronics: Design and Fabrication Techniques" authored by Dr. Haider. K. Raad., ISBN-13: 978-0692751718

Conference papers:

- ***Arvind Gurusekaran***, Mukhtar Ahmad, Manuela Ciocca, Enrico Avancini, Paolo Lugli and Luisa Petti, "Analysis of Dispense and Water Transfer Printing as Fabrication Methods for UHF Antennas on 3D Printed Substrates," *2022 6th IEEE Electron Devices Technology & Manufacturing Conference (EDTM)*, Oita, Japan, 2022, pp. 110-112, doi: 10.1109/EDTM53872.2022.9797997.
- ***Arvind Gurusekaran***, Hugo de Souza Oliveira, Vittoria Benedetti, Marco Baratieri, Niko Münzenrieder, Manuela Ciocca, Paolo Lugli, Luisa Petti, , "Autonomous shape memory hinge for space applications powered via solar energy" *2023 10th IEEE Metroaerospace Conference*, Milan, Italy 2023 (Paper accepted, expected to be published by October 2023)

Journal articles in refereed academic journals

- Annelot Nijkoops, Manuela Ciocca, Soufiane Krik, Ali Douaki, ***Arvind Gurusekaran***, Sahira Vasquez, Mattia Petrelli, Martina Aurora Costa Angeli, Luisa Petti, Paolo Lugli, "Flexible and Printed Chemiresistive Ammonia Gas Sensors Based on Carbon Nanotube and Conjugated Polymers: A Comparison of Response and Recovery Performance," in *IEEE Sensors Letters*, vol. 7, no. 6, pp. 1-4, June 2023, Art no. 2001004, doi: 10.1109/LSENS.2023.3274909

Exhibitions

- Presented poster titled 'Printed heaters for shape memory effect' Authored by: ***Arvind Gurusekaran***, Manuela Ciocca, Hugo De Souza Oliveira, Niko Münzenrieder, Luisa Petti, Paolo Lugli, Makers Faire 2022 – The European Edition, 09.10.2022, Rome, Italy

Conference Presentations

- Presented on 06.03.2022 on 'Analysis of Dispense and Water Transfer Printing as Fabrication Methods for UHF Antennas on 3D Printed Substrates' at 6th IEEE Electron Devices Technology and Manufacturing, held in Oita, Japan

- To present on 19.06.2023 on 'Autonomous shape memory hinge for space applications powered via solar energy' at 10th IEEE Metroaerospace conference in Milan, Italy

Statement of interest

After my masters degree, I had the opportunity to gain valuable industrial experiences. During my first job, I was a production supervisor at Syndicate printers Limited, India where I had the opportunity to learn and manage Printed antennas and RFID label division. I was sent to Roding, Germany to be trained on the DDA20K

Mühlbauer chip bonding machine directly at Mühlbauer headquarters. I was then hired as a project engineer at one of the premier institutions in India, IIT Kanpur. There, I was first trained on inkjet printers such as the Dimatix 2830 and the LP-50 which was customizable with a capacity to handle over 2000 nozzle printheads. I was optimizing conductive inks and fabricating patterns and devices. I learnt project management and was a rapidly developing researcher. I grew in my career when I was made the Assistant Manager for Printed Electronics in Classic Stripes private limited, a company based in Mumbai India. I handled the setting up of the new printing division and projects with external clients. I was in charge of developing electroluminescent devices and force sensing resistor based products for clients.

As a PhD student co-funded by Thales Alenia Space – Italy, I have gained invaluable experience in the field of metamaterials and the development of sensors, antennas, and actuators. Specifically, I have focused on the design and fabrication of actuating hinges using shape memory materials that respond to external stimuli. This endeavor has provided me with a diverse set of skills, including material selection, device fabrication on non-uniform surfaces, and programming of actuators.

During my time at Helmholz Zentrum Dresden Rossendorf in Dresden, Germany, I had the opportunity to work on a fascinating project involving soft robots made from self-healing, conductive, and magnetic composites. These soft robots possess the remarkable ability to sense their own deformation, further expanding my knowledge and expertise in this field.

The aforementioned experiences have equipped me with the ideal qualifications for the advertised topic. My passion for actuators and robots, coupled with the relevance of the topic to my PhD research, make it a natural extension and continuation of my academic pursuits. I am confident in my ability to quickly adapt to the requirements of the project and grasp its objectives with ease. I am committed to approaching the topic systematically and delivering periodic results that meet or exceed expectations.

Furthermore, I am excited about the prospect of collaborating with other esteemed European institutions. Such an opportunity would not only facilitate the exchange of knowledge but also provide a rich learning experience. I eagerly anticipate the chance to establish connections with fellow researchers and work alongside them towards our shared goals.

Language competence

English – Fluent
German – Intermediate - A2.1
Italian – Beginner - A1.1
Hindi – Fluent
Telugu – Native language
Tamil – Fluent
Kannada – Fluent

Date 16.06.2023

Signature