National Institute of Technology Tiruchirappalli

राष्ट्रीय प्रौद्योगिकी संस्थान तिरुचिरापल्ली

தேசிய தொழில்நுட்பக் கழகம் திருச்சிராப்பள்ளி

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Associate Professor

Dr.G.Lakshmi Narayanan

Publications

PhD Guidance

Dr. P.Palanisamy

Dr.B.Malarkodi

Dr.P.Muthuchidambara

Dr. M.Bhaskar

Dr. D. Sriram Kumar

Dr.G.Lakshmi Narayanan

Dr. G.Lakshminarayanan is a Professor in the Department of Electronics and Communication Engineering at NIT-Trichy, India. His research interests are primarily in the areas of High performance Digital VLSI Architectures, VLSI based Wireless System Design/Physical Layer Design and Algorithms & Techniques for Cognitive Radio. He worked in Sasken Communication Technologies Limited, Bangalore and was involved in FPGA timing closure project. He received the Ph.D. degree in VLSI Systems in 2005. He is currently the Head of the Department of Electronics and Communication engineering in National Institute of Technology, Tiruchirappalli. He is carrying out research work in VLSI Signal Processing, FPGA based Wireless Transceivers and Reconfigurable systems. He has executed many projects and fabricated chips.

E-mail

laksh@nitt.edu

Qualification

- M.E. (1995) in Communication Systems from National Institute of Technology (NIT), Tiruchirappalli
- Ph.D. (2005) in VLSI Systems-"Design and Analysis of FPGA based Wavepipelined and Pipelined Structures for Digital Signal Processing Applications" from Bharathidasan Unversity, Tiruchirappalli. The work carried out at NIT, Tiruchirappalli under the guidance of Dr.B.Venkataramani, Prof/ ECE & Dean (R&C), NIT-Tiruchirappalli

Positions Held

- Worked as Professor in Dept. of Electronics and Communication Engineering, National Institute of Technology, Tiruchirappalli from June 2018
- Worked as Associate Professor in Dept. of Electronics and Communication Engineering, National Institute of Technology, Tiruchirappalli from June 2010 to May 2018.
- Worked as Assistant Professor in Dept. of Electronics and Communication Engineering, National Institute of Technology, Tiruchirappalli from June 2007 to May 2010
- Worked as Assistant Professor in TIFAC CORE, SASTRA UNIVERSITY, Thanjavur from December 2006 to May 2007
- Worked as Assistant Professor in Dept. of ECE, Saranathan College of Engineering, Tiruchirappalli from September 2005 to November 2006
- Worked as Senior Design Engineer in Sasken Communication Technologies Ltd., Bangalore, from November 2004 to August 2005
- Worked as Scientist 'B' cum Research Associate in Dept. of Electronics and Communication Eng., National Institute of Technology, Tiruchirappalli from Dec. 2000 to October 2004
- Regular faculty for the continuing education programme on FPGA based System Design conducted by the Dept. of ECE, National Institute of Technology, Tiruchirappalli twice a year during 2002-2004

Specialization

- VLSI DSP
- Reconfigurable Systems
- Asynchronous Systems

Research Interests

- VLSI based Wireless System Design/Physical Layer Design
- Algorithms and Techniques for Cognitive Radio

Publications

- International Journals- 26,
- National journals- 2

- International Conferences- 51,
- National Conferences- 8

Click here to view the list of Publications

Academic Excellence

- Patents granted- 1,
- Patents filed- 3 (1 US patent under process)

Sponsored Research /Consultancy projects

- Project Investigator for the project titled "**Full Duplex and Cognitive Radio Architectures for Spectrally Efficient Communications**", funded by UGC-UKIERI with a total funding of 1.07 Crores during the period Apr. 2017 to Mar. 2020.

- Chief Investigator of the project titled "**Adaptive Telemetry System for Launch vehicles-Demonstration of Proof of Concept**", funded by ISRO under RESPOND scheme for 3 years with a total funding of 23.66 Lakhs (Project approved).

- One of the Co-Investigator in **SMDP-C2SD project** funded by MeitY, New Delhi from Apr. 2015 to Mar. 2020 with a total funding of 1.67 Crores.

- Project Investigator for the project titled "**Design and Implementation of Digital Modules of on-Chip Speech Recognition System**", funded by MeitY, New Delhi with a total funding of 79.76 Lakhs during the period Apr. 2015 to Mar. 2020

- Chief Investigator for the Project titled "**Design and Implementation of MB-OFDM UWB Transceiver Modules using Asynchronous Pipelining**" with total funding of Rs. 33.5 lakhs from DIT, New Delhi during the period Feb. 2008 - Feb. 2011

- Co-coordinator for the project titled "**Special Manpower Development programme for VLSI (SMDP-II)**" with total funding of Rs.109 lakhs from MIT, New Delhi during the period Feb. 2006 – Feb. 2012

- "**Low complexity Energy efficient Transceivers for Cognitive Radio System**" funded by UKIERI - Department of S&T, New Delhi with outlay of £40000 (shared by NIT, Trichy and HW University, Edinburgh, U.K) during the period 2012-2014.

- Partner for the project on "**Rural and Remote Ubiquitous Broadband Wireless Access**" funded by UKIERI - Department of S&T, New Delhi with outlay of £40000 (shared by IIT, Kharagpur and QUB, Canada) during the period 2012-2014.

- Setting up "**Wireless System Design lab**." under FIST Program, Department of S&T, New-Delhi with outlay of Rs.60 lakhs during the period 2012-2017

- Co-PI for the project titled "**Self-Energised UAV-assisted Communications for 5G Wireless Networks**", funded by MHRD SPARC with a total funding of 73 lakhs during the period 2019 to

- Co-Investigator for the project titled "**In depth investigation on corrosion and tribological studies on expandable engine**", funded by DRDO with a total funding of 98.85 lakhs during the period 2018 to 2021.

- Co-Investigator for the project titled "**Energy efficient implementation of Multi-modular Exponential techniques for Public-key Cryptosystems**", funded by DST with a total funding of 35 lakhs during the period 2018 to 2021.

Ph.D Guidance

- Completed- 6
- Ongoing- 10

M.S (By Research) Guidance

- Completed- 5
- Ongoing- 3

Workshop/seminars Organized

- Organized a week GIAN course on "**Vogue Technologies on 5G & 5G+ Communication and Vehicular Technology**" from 26th Dec to 31st Dec, 2017.
- Conducted one day workshop on "**Evolution of 5G and IoT Through Cognitive Radio Networks**" from 6th May to 7th May, 2017.
- Organized one week workshop on "**Synopsys EDA Tools Training-Under SMDP-C2SD**" from 5th Jan to 10th Jan, 2017
- Organized UKIERI Sponsored two day Workshop on "**Advances in Cognitive Radio and its Hardware Implementation**" on 23rd & 24th December 2014.
- Organized an "**Entrepreneurship Development Programme**" from 30th June to 26th July, 2014.
- Organized a "**Faculty Development Programme**" from 5th May to 17th May, 2014.
- Organized a "**Faculty Development Programme**" from 3rd March to 15th March 2014.
- Organized an "**Entrepreneurship Development and Management**" Programme from 9th Dec to 13th Dec, 2013.
- Conducted one day workshop on "**Reconfigurable Technology and Its Applications**" on 3rd October, 2011
- Conducted a two day workshop on "**Design of High Performance Systems Using FPGAs**" during 23rd & 24th January '09
- Conducted one day workshop on "**Potential of UWB Wireless Technology**" on 19th July '08
- Conducted two day workshop on "**An Overview of VLSI CAD TOOLS for Designing with Programmable Logic**" as a Course Coordinator on August 17th & 18th, 2007
- Organized a week intensive course on "**VLSI Realization of Digital Systems**" at Saranathan College of Engineering, Tiruchirapalli from 9th Jan to 17th Jan, 2006

Countries visited

U.K, Korea

Research Achievements

- Fabricated a chip through INDIA Chip 2010 Programme under SMDP Project.
- Worked as a research engineer in projects executed by Dr.B.Venkataramani, Professor (HAG), NIT-T during 2001-2004. An FPGA based board was designed and delivered to LRDE. A patent was also filed as a part of this project.

Research Collaborations

- First time Initiated collaborative work with SAMEER-CEM, Chennai and Carried out RF front end fabrication and integration
- First time Collaborated with QUB, Belfast, UK
- Research collaboration with professors in University of Edinburgh, U.K., Herriot-Watt University, U.K., and University of Saskatchewan, Canada.
- ECE – BOS Member for six colleges like PSG Tech., Coimbatore, CIT, Coimbatore

Contribution to NITT

- Maintenance in-charge of all seminar Halls in the NIT-T Campus
- Received the following VLSI Tools free of cost- Xilinx ISE Software (every now and then updated) worth Rs.2 lakh, Xilinx Hardware boards worth Rs.2 lakh and Altera Hardware board worth Rs.0.5 lakh
- Received 25 numbers of "Xilinx ISE Design Suit: System" edition Licenses and 3 numbers of "Partial Reconfiguration Licenses" worth Rs.3,76,000 on June 2012 from Xilinx Inc for Free of Cost.
- Received the following VLSI Tools free of cost- Xilinx ISE Software (every now and then updated) worth Rs.2 lakh, Xilinx Hardware boards worth Rs.2 lakh and Altera Hardware board worth Rs.0.5 lakh during 2005 -06

Foreign Collaboration:

Ph.D. /M.S Student Visited Abroad	Duration	University Visited	Area and Foreign Supervisor
C. Vennila Arasu	Mar 2010 – Aug 2011	University of Saskatchewan, Saskatoon, SK, Canada.	"Dynamic Partial Reconfigurable FFT for OFDM based Communication Systems" under the Guidance of Prof. Seok-Bum Ko.
K.Swaminathan	Sep 2011 – Feb 2012	University of Saskatchewan, Saskatoon, SK, Canada.	"Design and Verification of Generic High Speed Network Interface for Network on Chip" under the Guidance of Prof. Seok-Bum Ko.
Geethu S	Aug 2012-Nov 2012	Heriot Watt University, Edinburgh, United Kingdom	"Spectrum Sensing Algorithms for Cognitive Radio Networks" under the Guidance of Dr. Mathini Sellathurai.