## N. Moorthy Muthukrishnan

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**Objective**

Seeking a position as a member of faculty in Electrical and Computer Engineering.

**Visa Status: US Citizen**

# **Background/skills** - Over 15 years of industrial experience in the areas of medical devices, semiconductor manufacturing and product engineering including 2 years in managerial level. - Experience in managing projects in lab infrastructure, solar PV, microgrids, and equipment installation.

* Over 13 years in teaching courses, research, and administration at university level.
* Experience in acquisition, installation and qualification of equipment, research and consultancy, etc.
* Guided several projects in embedded systems, Biomedical Image Processing, and Solar PV.
* Hands-on experience in laser surgical equipment and verification system development for surgical robots.

# Good communication, leadership, and interpersonal skills, with project management experience.

**Education**

* + **Ph.D. Electrical Engineering** (Virginia Tech, Blacksburg, Virginia, USA. Nov 1996)
  + **M.S. Electrical Engineering** (Virginia Tech, Blacksburg, Virginia, USA. Dec 1989)
  + **M.Tech. Electrical Engineering** (Indian Institute of Technology, Madras, India, Jan 1985)
  + **B.Engg. (Hons) Electronics and Communication Engineering**(PSG Tech, Coimbatore, India, May 1983)

# **Professional Development Training**

* **Project Management Professional (PMP) certification** (Dec 2019)
* **Linux CompTIA certification class   
  (**Wake Tech Community College, Raleigh, North Carolina, Dec 2017)
* **Solar PV Design and Installation - Fundamentals and Advanced courses**(NC Clean Energy Technology Center, North Carolina State University, Raleigh, NC.   
   Jun – Nov 2017)
* **Certificate in Object Oriented Programming in Java**

(Univ. of California-Santa Cruz Extn, California, USA. Mar 2001)

1. **Publications**
2. Over 40 publications in journals and conferences
3. **Courses Taught**
4. **At NCSU Raleigh, UNC Asheville**ECE 720 Electronic System Level and Physical Design  
   JEM 484/485 Senior Design Project  
   JEM 180 Introduction to Mechatronics Engineering Lab (From Spring 2022)  
     
     
   Coordinated :  
   ECE 109 Introduction to Computer Systems  
   ECE 209 Computer Systems Programming  
   ECE 306 Introduction to Embedded Systems  
   ECE 310 Design of Complex Digital Systems  
   MSE 201 Structure and Properties of Engineering Materials  
   JEM 455 Robotics and Autonomous Systems

**At Other Universities/Colleges** Basic Electrical and Electronics EngineeringMicroprocessors and Microcontrollers   
 VLSI Design Low Power VLSI design

1. Electrical Sciences I Digital Electronics
2. Analog Electronics IC Fabrication Technology (part**)**

Introduction to MEMS CAD for IC design   
 Physics and Modeling of Microelectronic Devices

**Recent projects**

* Design of solar PV system for several large campuses, including a university campus
* Energy audit of commercial and government buildings
* System-level testing of laser-based surgical equipment
* Developing system architecture from user requirements for verification of surgical robots
* Verification of code for surgical robots
* Segmentation of tumor/cancer from biomedical images

**Management experience**

* Worked as a Supervising engineer for device testing at LSI Logic, managed three engineers, and supported the entire organization in process development and manufacturing areas.
* Worked as Head of the department supervising 40 faculty and staff and 400 students.
* Worked as Head of research and consultancy coordinating the research activities and interfacing with external funding agencies both government and private.
* Established research centers in collaboration with several companies.

**Professional experience  
 Lecturer to Teaching Professor Oct 2019 to present  
 North Carolina State University,** Raleigh, NC - Teaching and facilitating undergraduate level courses in Electrical and Computer Engineering and   
 Mechatronics Engineering  
 - Advising students on Senior Design projects in the areas of Solar PV systems, Nanosatellites, and   
 Mechatronics.

**Software Engineer - Senior Embedded Developer Nov 2017 to Apr 2019** HCLTechnologies, Cary, NC   
 - Completed a course on Programming Universal Robots e-Series.   
 - Trained in Project management and MS Project.  
 - Worked on a project on system-level testing of Laser-based surgical equipment  
 - Trained in Medical Devices – Regulatory Compliance (FDA) and Quality management systems   
 (ISO 13485)  
 - Trained in JavaScript, C#, and ASP.NET in Visual Studio IDE, C++, Java, and Python   
 programming, Software development and debugging   
 - Working on a project for constructing a system for verification of surgical robots  **-** Worked onsoftware verification (Embedded C++) for surgical robots  
 - Developed a Python program to sort and process text files using GUI.

**Adjunct/Teaching Professor Aug 2017 to Dec 2017  
 North Carolina State University,** Raleigh, NC - Taught a graduate level course in Electronic System Level and VLSI Physical Design  
 - This includes design and analysis of VLSI circuits

**Professor Aug 2006 to Mar 2017**  
- Worked as Professor of Electrical and Electronics Engineering at G. Narayanamma Institute of Technology and Science, Hyderabad, BITS-Pilani, Hyderabad, and CBIT-Hyderabad.   
- Worked as the Head of the Department for 5 years.

* Taught courses in Electrical and Electronics engineering – Basic electrical engineering, microprocessors and microcontrollers, Digital electronics, Analog Electronics, VLSI Design, VLSI Fabrication, MEMS, etc.
* Guided several projects in embedded systems, image processing, and solar photovoltaics

**Technical consultant Jun 2006 to Apr 2007**

* Marketing and installation of semiconductor process and test equipment such as spin coaters and IC testers
* Consulting with the customers to identify the best equipment to suit their requirements and specifications.

**Sr. Process Engineer, Jun 2004 to Nov 2005**

Lam Research Corporation, Fremont, California, USA.

* Managed a project for developing a business process flow for generation, review, approval, and release of documentation and software using Project Link in PLM (Product Lifecycle Management).
* Worked as assistant project manager for developing AutoPMTM software.
* Program development, testing, debugging, and maintenance of proprietary machine control AutoPMTM software for Lam 2300 Plasma Etch systems.
* Troubleshooting machine hardware based on test program results.
* Testing of editor, analysis, report generation software related to Lam 2300 etchers.
* Determining plasma etch process sensitivities in order to develop models for processes.

**Adjunct Faculty Sep 2002 to Nov 2002**

National American University, Overland Park Extn., Kansas, USA.

* Taught undergraduate level courses in Java Programming and Personal Computer configuration (for A+ certification)

**Process Engineer - Staff Product Engineer, Jun 1990 to May 2001**

LSI Logic Corp. Milpitas, California, USA.

* Developed, debugged and maintained C/Unix programs for testing Sony PlayStation ASICs using Credence SC212 (ATE) testers.
* Wrote C-shell script to do batch processing of files.
* Developed, debugged, and maintained programs in C for device level testing/characterization of semiconductor devices using automated wafer testers (Keithley and HP-Agilent)
* Responsible for developing test programs for product wafers and distributing to all the fabs in LSI.
* Supported submicron R&D process development through electrical characterization of the devices such as transistors, diodes, resistors, capacitors, and defect density structures.
* Developed of Perl programs to extract and analyze data from large files and analyze variations.
* Developed processes for photo, etch and thin film areas of IC fabrication.
* Installed and qualified equipment in photo, etch, and thin film areas.
* Developed programs in RS1 programming language (used for processing large volumes of data) to analyze process data
* Worked as a Statistical Process Control (SPC) coordinator and kept track of critical process parameters in LSI’s wafer fabrication plant.
* Worked as an internal ISO 9000 auditor at LSI Logic corp.

**Computer skills**

**Systems** Desktop, Laptop computers

**Software** MS Office, MS Project, Windows OS, Linux OS   
C/C++, Java, JavaScript, Python, Oracle PL/SQL

**Software courses studied**

Object Oriented Analysis Object Oriented Design

PL**/**SQL Programming with Oracle C/C++ Programming

Java and Advanced Java Programming Java Network Programming

**Management courses studied** Project Management Understanding the role of management

Making managers into leaders Karrass Negotiation Seminar

Presentation Skills Time Management

## Awards and memberships

## Former member of Project Management Institute (PMI)

## Former Senior Member of IEEE.

## Fellow of Institution of Engineers (India)

## Fellow of Institution of Electronics and Telecommunication Engineers (India)

## Received Outstanding Employee Award at LSI Logic, California for outstanding performance.

* Gold medalist (valedictorian) in academics in High School and Undergraduate classes.
* Awarded ‘Good Teacher’ Award by Rotaract Club of Hyderabad, India.