

# A.N. Shyam Sundar

<https://anshyamsundar.github.io/PersonalWebsite/>

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## EDUCATION:

University of London, London, UK	Dec 2025
<b>Bachelor of Laws, Honors</b>	Grade: 2:1, Merit
Clemson University, Clemson, SC	May 2011
<b>Master of Science in Electrical Engineering</b>	GPA: 4.00/4.00
<b>Minor: Computer Science</b>	
<b>Specialization:</b> Robotics, Computer Vision, Artificial Intelligence, Control	
National Institute of Technology, Tiruchirappalli, India	Jun 2009
<b>Bachelor of Technology in Electronics and Communication Engineering</b>	GPA: 8.26/10.00

## RELATED EXPERIENCE:

<b>Software Engineer / Tech Lead, DCG Systems / Thermo Fisher Scientific</b>	Jul 2012-Present
<ul style="list-style-type: none"><li>• Principal Developer and Maintainer of Nanoprober and AFM product lines</li><li>• Train manufacturing teams and oversee all production systems' software</li><li>• Spearhead development of Image Processing/Vision Algorithms</li><li>• Software security, licensing, contracts and legal review/compliance</li><li>• Hardware interfacing via APIs and protocols</li><li>• Develop utilities to aid tool configuration, management and enhancements</li><li>• Primary expert for in-house IT and engineering/manufacturing tool support</li><li>• Lead resource for troubleshooting, customer escalations and field support</li></ul>	
<b>Electrical Controls and Software Engineer, Qualitek-VIB</b>	Aug 2011-Jul 2012
<ul style="list-style-type: none"><li>• Lead Applications Engineer for core product lines – QCS and PCS</li><li>• Principal Developer, new product line – ProTrace Plant Process Monitoring</li><li>• Allen-Bradley, Modicon PLC programming, troubleshooting and support</li></ul>	
<b>Independent Software Developer, Trachte Inc.</b>	Feb-Jul 2012
<ul style="list-style-type: none"><li>• Developed a software tool for auto-data migration between databases</li></ul>	
<b>Graduate Assistant, Analysis of Linear Systems</b>	Aug 2010-May 2011
<ul style="list-style-type: none"><li>• Grading weekly assignments and maintenance of class grade database</li><li>• Preparing fresh course materials and typesetting current course handouts</li></ul>	
<b>Summer Intern, Robotics and Virtual Reality, Hungarian Academy of Sciences</b>	Jun-Aug 2010
<ul style="list-style-type: none"><li>• Developed a python wrapper for serial interfacing a general mobile robot</li><li>• Got acquainted with VIRCA, an online robot virtual collaboration tool</li></ul>	
<b>Summer Intern, Robotics, Indian Institute of Science, Bangalore</b>	May-Jun 2008
<ul style="list-style-type: none"><li>• SD card interfacing using microcontroller C8051F12X</li><li>• Developed UART protocols for PC-microcontroller communication</li></ul>	
<b>Winter Intern, Computer Hardware and Networking, Air India</b>	Dec 2007
<ul style="list-style-type: none"><li>• Training in operating systems, computer hardware and internet protocols</li><li>• Hands on experience in assembling desktop CPUs and Epson printers</li></ul>	

## ENGINEERING PROJECTS:

• Development of a Low Noise Switch Matrix	Jan 2026-Present
• Refactoring, restructuring Nanoprober 5 codebase and architecture	Nov 2025-Present
• Freeze Switch and Load Testing modules for Nanoprober 5	Jan 2025-Nov 2025
• Security and penetration testing for Nanoprober 5 qualification	Jun 2025-Nov 2025
• Probe motion and path-planning algorithm	Jan 2025-Jun 2025

• Hyperion Atomic Force Microscope platform migration	Jan 2024-Dec 2024
• Nanoprober platform migration	Jan 2022-Dec 2023
• Automated probe landing	Jan 2020-Dec 2021
• EBIRCH module to enable EBAC/EBIC imaging	Jan 2019-Dec 2019
• Nanoprober LR and HP product line development	Jan 2017-Dec 2018
• Reverse engineering Atomic Force Microscope	Jan 2016-Dec 2016
• Automated Cross Cleaning	Jun 2014-Jan 2016
• DCM Module charting and enhancements	Sep 2013-Dec 2014
• Probe tip detection and auto-focus/wobble/stigmation algorithm	Dec 2012-Jun 2014
• PLL-based force feedback module	Jul 2012-Oct 2012
• ProTrace Plant Process Monitoring Software	Dec 2011-Jun 2012
• Development of a Vision-based corrugated sheet counter	Jan 2012
• Algorithm development for sheet warp detection using laser sensors	Dec 2011
• Zigbee interfacing using Arduino Duemilanove development board	May 2011-July 2011
• Graduate Thesis: Pose estimation and robotic disassembly	Jan 2010-Apr 2011
• Development of a Universal Robotic Gripper	Dec 2010-Mar 2011
• Development of an Email Client for Smart-phones	May 2010
• Development of a Bluetooth-based Device tracking system	May 2010
• Control of Mobile Robot using Hand-Gestures	Mar-Apr 2010
• Modeled forces on a general Haptic Interface Device	Dec 2009
• Enhancement of NASA's Moon Landing Videos	Nov-Dec 2009
• Designed a Pong game to be adapted as a GUI for a game-playing robot	Sept-Oct 2009
• Development of an Amphibious Robotic Vehicle	Jan-Mar 2009
• Design of high-voltage DC-pulse generator	Jan 2009
• Design and Development of Filters using CPW Antennas	Nov 2008
• Design and Development of a Bio-Implantable Antenna	Aug 2008
• Development of a Microwave Components tutorial software	Jan-Feb 2008
• Designed and Implemented a purely hardware-based Line-Follower Robot	Jan-Mar 2007
• Development of Attenuating Circuit Design software	Sep-Oct 2006

#### **LEGAL WORK:**

- Public impact litigation and advocacy, Bhavsar v Const LLC May 2023-Present
- Public impact litigation and advocacy, Re Prime Core Technologies, et al Aug 2023-Present
- Assist Pro Se litigants in family court, bankruptcy and civil litigation Aug 2018-Present
- Public impact litigation and advocacy, Re BlockFi Inc., et al Nov 2022-Jan 2023
- Public impact litigation, Collin County Commissioners Court Oct 2017-Dec 2017
- Texas Small Claims Court filings and arguments Dec 2013-Dec 2015

#### **SOFTWARE SKILL SET:**

##### **Languages:**

C#, C, C++, Python, Java, Visual Basic, Perl, LISP, SQL, HTML, PHP, Javascript, Ajax, Windows scripting, Verilog, Assembly languages of microprocessor 8086, microcontrollers 8051, 6811, 6812 and the ARM Processor.

##### **Packages, Frameworks and Libraries:**

Visual Studio, .Net Core, ASP.NET, gRPC, WPF, STL, TensorFlow, AWS, Kubernetes, Docker, LightningChart, NI Measurement Studio, Syncfusion Essential Studio, RSLogix 500 and 5000, RSLinx, Aria, AutoCAD, jQuery, Matlab, Octave, Blepo, OpenCV, EmguCV, OpenGL, PyBlueZ, PySerial, Xlrd/Xlwt, Notepad++/Regex, LaTeX, MathType, Magick++, CommSim, Photonics CAD, Proteus ISIS, Code Composer Studio, Keil, Adobe Photoshop, GIMP, Inkscape, Quartus, VIRCA, Oracle, NetBeans, VMWare ESXi, TortoiseSVN and Git.

##### **Operating Systems:**

Windows, Linux (Ubuntu, CentOS), UNIX and Android.

### **Certifications:**

Java Web Development, Certified ScrumMaster, Heartsaver First Aid CPR AED.

### **LEGAL SKILL SET:**

Legal strategy, research, drafting, filing, litigation, contract review and negotiation.

### **PATENTS, PUBLICATIONS AND RESEARCH:**

- Capacitance-based detection of probe contact, **Shyam Sundar Aswadha Narayanan** (US Patent application US-20240385238-A1)
- "SEM Vision Based Realtime Nanoprober Autofocusing Algorithm" – **Shyam Sundar**, Sushil Digewade
- "Pose Estimation for Robotic Disassembly using RANSAC with Line Features" – **Shyam Sundar**, Dr. Richard Groff
- "Household Floor Decluttering Using a Mobile Universal Gripper" - Bryan Willimon, Brian Peasley, **Shyam Sundar**, Steven Hickson, Dr. Stan Birchfield
- "CPW Structures and Discontinuities" – **Aswadha Narayanan Shyam Sundar**, Dr. S. Raghavan, Mr. D. Sriram Kumar (International Conference, ICOICT 2009)
- "Implantable Antennas" – **Aswadha Narayanan Shyam Sundar**, Dr. S.Raghavan, Mr. D. Sriram Kumar (International Conference, ICOICT 2009)

### **ACHIEVEMENTS AND AFFILIATIONS:**

- Peer Recognition Awards, Thermo Fisher Scientific, 2021, 2022, 2024, 2025
- Outstanding Employee Award, DCG Systems, 2015
- Bravo Award, DCG Systems, 2013, 2014 and 2015
- Won Gulf Association of Indian Professionals Medal and a Certificate from the Ambassador of India
- First place, United Nations Examination, Gulf Region
- Second place in "Ingrained", a national level Microcontroller-based Circuit design competition in India
- Third place in "Sanrachana", a national level Roller-Coaster mechanism design competition in India
- Member, Alpha Epsilon Lambda Honor Society, Clemson University Chapter
- Member, Omicron Delta Kappa Honor Society, Clemson University Chapter
- Member, Robotics Society of America
- Member, Australian Robotics and Automation Association
- Member, Institute of Electrical and Electronics Engineers
- Member, ScrumAlliance

### **LEADERSHIP:**

- Campus Representative, CollegeBookRenter, Clemson University
- Graduate Student Mentor, Clemson University
- Event Coordinator, MuAnaDigix, Circuit designing competition, NIT Tiruchirappalli
- Team Leader, National Service Scheme (NSS) Camp, NIT Tiruchirappalli
- Coordinator, "Lapis Cup", Cricketing event of Wisdom Club, NIT Tiruchirappalli
- Manager, Tour De NITT, annual cycling event, NIT Tiruchirappalli
- Associate Coordinator, Festember '07, Cultural Festival, NIT Tiruchirappalli

### **ACTIVITIES:**

- Member, Thermo Fisher Scientific Environmental Health and Safety Committee
- Member, OSUM Club, Clemson University
- Student Patrol Officer, Clemson University Police Department
- Member, Wisdom Club, NIT Tiruchirappalli
- Member, Computer Support Group for Pragyan '07, Technical Festival, NIT Tiruchirappalli
- Member, Organization Committee of Nittfest '06, Cultural Festival, NIT Tiruchirappalli
- Member, Technical Team of Probe '06,'07 and '08, Technical Symposium, NIT Tiruchirappalli