

Arvinder Singh Chadha

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OBJECTIVE:

A processing, design, modeling or development engineering position in the area of electronics, photonics or an interdisciplinary field

ENGINEERING SKILLS:

Process Equipment: PECVD, DC magnetron-sputtering, deep reactive ion etch (DRIE), mask aligner, III-V etcher, e-beam evaporator, thermal evaporator, dip coater

Measurement Equipment: Scanning electron microscope (SEM), Fourier transform infrared spectrometer (FTIR), interference microscope, Energy dispersive X-ray spectroscopy (EDX), parametric analyzer, probe station, transmission spectrometer, ellipsometer, oscilloscope

Processes: Self assembly using colloidal chemistry, electroplating, electro etching, oxidation, diffusion, photolithography, sputtering, evaporation, dry/wet etching, spin coating, lift off

Software: RSOFT, FEMLAB, MEEP, MATLAB, PSPICE, C++, CAD, RCWA, Verilog/VHDL, LabVIEW, FDTD, Microsoft Office, Assembly language

Modeling, Design & Testing:

- Designed, fabricated and characterized MOS logic circuit for time width modulation
- Tested and measured reliability of on-chip temperature sensor and cantilever switches
- Used reverse engineering to trace the process parameters and the circuit operation
- Designed an automated robot to find its path in and out of a maze in the shortest time
- Calculated the scattering & band structure for nanostructures and photonic crystals

EDUCATION:

Master of Science, Electrical Engineering (Nanostructures and Devices), University of Colorado at Boulder, Graduation Date- Dec'08, GPA: 3.6

Relevant Coursework: Micro Fabrication Laboratory (Semiconductor), Solid State Physics, Semiconductor Physics and Devices, Electromagnetic Radiation and Antennas, Optical Properties of Materials, Active Optical Devices, Solar Cells, Nanophotonics, VLSI-design, Digital and Analog Integrated Circuits.

RESEARCH EXPERIENCE:

Research Assistant, University of Texas at Arlington, 01/10- Present

- Designed a photonic crystal filter for absorption enhanced infrared photo detector
- Studied the surface texturing of silicon for omni directional antireflection coating for solar cell
- Designed recipes for dry etching of GaAs

Professional Research Assistant, QUEST Product Development Corp., University of Colorado at Boulder, 01/09- 09/09

- Developed recipe for fabricating shape memory alloys, polymers, metals and silicon together
- Studied the electrical and the mechanical properties of thin film silicon on a SOI wafer
- Designed circuitry for the embedded electronics to control the movement of an active catheter

Research Assistant, National Institute of Standards and Technology (NIST) - University of Colorado at Boulder, 05/07 - 11/08

- Modeled and analyzed RF antennas structures using finite element method software FEMLAB
- Fabricated RF antennas using photolithography, thermal evaporation, lift off and electroplating

Research Assistant, University of Colorado at Boulder, 01/07 - 05/08

- Synthesized gold nanoshells & silica particles (190nm-420nm) with size distribution < 5%
- Infiltrated polymers into nano structured opals (face centered cubic closed packed silica spheres) using spin coating technique
- Improved the reflectivity of inverse opals threefold using dry and wet etching
- Characterized the size and the optical properties of nano shells, spheres and opals using SEM and spectrometers

Research Intern, Indian Institute of Technology, Bombay, 03/05 - 03/06

- Developed a software in C++ for feature extraction & matching of stereo images from satellite platform

WORK EXPERIENCE:**Lead Teaching Assistant, University of Colorado, Boulder, 05/07 - 05/08**

- Doubled the number of student representatives of Electrical Engineering Department through publicity
- Increased the participation of the students in the professional & the teaching development workshops

Teaching Assistant, University of Colorado, Boulder, 01/07 - 05/07

- Taught a laboratory course on electronic circuits involving semiconductor devices- diodes, transistors, MOS
- Extracted the AC/DC parameters of electrical circuits using PSPICE

Technical Head, Student Chapter IEEE, University of Mumbai, 05/05 - 05/06

- Organized technical seminars, industrial visits and technical competitions
- Increased the sponsorship by fifty percent for the technical competitions

HONOR/ACTIVITIES:

- Recipient of the Doctoral Dean's scholarship, University of Texas at Arlington, August 2009
- Recipient of the NSF STEM scholarship, University of Texas at Arlington, August 2009
- Poster presented at Integrated Micro/Nano- Electromechanical Transducers, iMINT, Boulder, March'08
- First prize at Mechanical Design Contest, Indian Institute of Technology National Competition, 2003
- Maximum load carrying structure, Indian Institute of Technology National Competition, 2003
- Second prize in Industrial Design Workshop (SAE), University of Mumbai, 2003
- Second prize in Robotics, Student chapter IEEE, University of Mumbai, 2003
- Member of Optical Society of America (2008-2009) and IEEE (2003-2006)