SACHIN M. SHENDOKAR	Email:qow14@txstate.edu,sachin.shendokar77@gmail.com, Office: IGRM 2102, Phone: 512-245-1826, Mobile:336-988-4759

Objective: As an Engineer, to contribute to making life on Earth a better experience.

Education Summary:

Ph.D. (Nanoengineering), 2019-2024 Joint School of Nanoscience and Nanoengineering, **CGPA 3.59**

- Relevant Courses –Nanomaterials, Nano processing, Nanoelectronics, Design of Experiments.
- Memberships – IEEE, MRS, ECS, SAMPE.
- Awards – NNCI – Plenty of Beauty at the Bottom, ECS Conference volunteering.

Ph.D. (Mechanical Engineering), 2007-2010, North Carolina A & T State University, **CGPA 3.62**

- Relevant Courses –Composite Materials, Finite Element Analysis, Fracture Mechanics

Nano Synthesis: ALD, CVD, PVD, Electrospinning, Spin Coating, VARTM, Plasma Etching
Nano Characterization: Scanning Electron Microscopy, X-Ray Photo Electron Spectroscopy, Raman and Photoluminescence, Atomic Force Microscopy, Ellipsometer, KLA-Zeta 20 Profilometer, Zeiss OM
Mechanical Testing: Tensile Strength, Mode-I Fracture Toughness, Short Beam Shear Strength, NIST Databases.
Industry Skills: Root Cause Analysis**,** Statistical Process Control and Analysis, Data Driven Decision Making
Certifications: SaS Certified for Design of Experiments, Exploratory Data Analysis, and Quality Methods.
Programming: Custom AI GPT, SQL, C, C++, Sun Certified Java Programmer
Proficient: AutoCAD, Solidworks, JMP, Statistical Process Control
Orientation: Stereolithography. Fused Deposition Modeling, ANSYS

Experience:

1. Lecturer, Ingram School of Engineering, Texas State University, San Marcos-78666, **Sep 2025 - Onwards**
   Role: Lecturer: Materials Engineering, Mechanics of Materials, Manufacturing Processes
   Course Curriculum Development: AI in Manufacturing,
   Research: Development of a Digital Twin for HAAS CNC Milling Operation by implementing an Acoustic Emission Monitoring System
2. Intel Corporation, Hillsboro, Oregon, **June 2024 to July 2025**.
   Role: Semiconductor Manufacturing Process Engineer
   - Developing and executing DoEs for functional etching recipe development for TEL TX/ZX/SX platforms.
   - TEL tool qualification with Sequential engineering qualification (SEQ) with RF survey, Gas Flow Auto Check (GFAC) fingerprinting, HV systems ratings followed by SS and ER monitors matching with POR chamber, Tool Qual WP with fingerprinting, RF survey, and data rollup for Monitors and CDs
   - Developing etch rate monitors for Ox, SiN, WDC, CHM blankets used for 1278, 1280 technologies for GCN and TCN etch recipes, ER SPC charts creation, Automon configuration, and developing a scheduled PM checklist for TEL tools,
   - Executing DoEs for WIW uniformity and Run-Order variation evaluation.
   - PCSA report evaluation, including trend charts, chamber and product comparisons, chamber health monitoring, responding to CLCR flags, Tool Mis-Match (TMM), and C_{pk}.
   - Lot splits and merges for WIPIT, SIF creation, and Disposition, dealing with lots in trouble. E3 Analytics for flags and aborts RCA by comparing long-range data, fleet performance, and E3 traces.
   - JMP for process data analytics to study ER monitors and CDs trends. RCA for recipe or E3 tool issues. Fuzion passdown for work orders to deal with lot aborts and tool maintenance.
   - Preventive Maintenance (PMA/C/D/E), Lot dispatch monitoring for Orderable/Selectable/CQT/ SIFs/ Splits and Instruction flags, Lot plan editor to edit lot flow,
   - SIF management UI for accommodating variations in processing eg, Custom Recipes, Check out lots to verify new recipe performance for inline CDs, physical and in-foup split/merge etc.,
   - Quality Event Forms (QEFs) for lot aborts with CAPA Plans.
3. Intern at Qorvo – RF Devices Manufacturing - **Jan 2023 – May 2023**
   - Development and evaluation of a non-cyclic recipe for plasma-therm PECVD to deposit SiO_2.
   - DoEs were used to model the impact of variation in recipe parameters on the responses of density, stress, index of refraction, and deposition rate of SiO_2.
     Hands-on Tool and Equipment Experience: Plasma-Therm CVD Tool – Recipe modification and execution. KLA Tencor Tool – Thickness, Refractive Index. Automated Weighing Scale, Stress Measurement, Surface Evaluation. Statistical Process Control – Control Charts – using JMP.

Research Experience: Graduate Research Assistant - **Aug 2019 – May 2024**

Synthesis of MoS_2 by Sulfurizing ALD grown MoO_3

- MoS_2 thin films exhibit thickness-dependent band gap tunability and has semiconductor, optical, energy, biosensing, flexible, and wearable electronics applications.
- Atomic Layer Deposition of MoO_3 using $Mo(CO)_6$, H_2O and Ozone precursors.
- ALD process engineering to achieve Wafer Scale MoO_3 deposition.
- Stoichiometric sulfurization of MoO_3 in a single-chamber CVD furnace to MoS_2.
- Characterization of MoO_3 sulfurized to MoS_2 using XPS, Raman, XRD, SEM, and AFM

Large-Scale CVD Synthesis of MoS_2 using solid MoO_3 and Sulfur precursor

- Development of a standard operating procedure for CVD synthesis of MoS_2.
- Determine optimized CVD parameters for repeatable synthesis of monolayer MoS_2.
- Study and explain strategies for low-temperature synthesis of MoS_2 from solid precursors.
- Identification and Justification of the Eutectic Effect in MoO_3 due to Sulfur
- Taught MS student Nanosynthesis and Characterization of 1D and 2D Materials

Graduate Research Assistant - Jan 2007 – May 2010

- Manufacturing of Electrospun Nanofibers Using Tetra Ethyl Ortho- Silicate (TEOS) Sol-gel,
- Optimization of Electrospinning Setup and Process Parameters,
- Development of Glass Mold Process for Electrospun Nanofiber Infused with Epoxy Resin Composites,
- Manufacturing Composites Using Vacuum Assisted Resin Transfer Molding (VARTM, H-VARTM),
- Characterization of Electrospun Nanofiber Interleaved Composites as per ASTM Standards for Tensile, Compression, Fatigue, Mode-I Fracture Toughness, Short Beam Shear, Flexural properties,
- SEM, and Optical Microscopy. Development of unit cell approach for DCB modeling using Ansys.
- Estimation of homogenized properties of Epoxy TEOS nanofiber composites using Ansys.
- Dispersion of CNT's using Ultrasonication and High Shear Mixer. DMA, Thermo-Gravimetric Analysis (TGA), Differential Scanning Calorimeter (DSC), C-Scan of CNT- Epoxy composite specimen
- Conducted tutorials for Statics, Mechanics of Materials, FEM and taught classes for Material Science and Manufacturing Processes

Past Industry Experience:

- Industrial Engineer, XLO (I), Ltd, Nashik, India - **1995 – 1996**

As an Industrial Engineer, my responsibility included developing Process Sheets for several components of Mechanical Steering Gear, including Drop Arm, Housing, Connecting Rod, and upper steering column assembly. Each process sheet used to be a collection of operations performed on those components like Facing and Centering, Drilling, Grinding, Turning, Buffing, etc. Each operation sheet's data was recorded for the previous operation, current status, and next operation in the operation sequence, with all GD&T notations for dimensions and surface finish. Data for cutting tools, jigs, fixtures, and metrology tools was recorded for each operation. Development of the Operation Sheet involved stopwatch time and motion study to record the operation time for each processing stage. Each Operation sheet was the responsibility of the Industrial Engineer, the Industrial Engineering Supervisor, and the Section head. All work was to be done in **AutoCAD**, and the database record was maintained in **Oracle**.

Past Qualification:

Sr. No.	Qualification	Affiliation	Period
1	Ph.D(Mech. Engg)	NCA&TSU, Greensboro, NC	2007 - 2010
2	M.S. (Manufacturing Engg)	GCOE, Pune, India	1996 - 1998
3	B.S. (Production Engg)	COET, Akola, India	1990 - 1994

Past Academic Experience:

Sr. No.	Position	Affiliation	Period
1	**Research Professor**	**JSPMS, RSCOE, Pune, India**	**Oct 2018 – Aug 2019**
	Teach CAD/CAM at UG and PG Level, Guide students for Senior Design Projects using Creo / CATIA / SolidWorks, Mentoring Students for Industrial Experience.		
2	**Dean of Engineering**	**BVCOE, Lavale, Pune, India**	**June 2012 – Oct 2018**
	This was an administrative position with responsibility for the academic growth of the college, Allocation of teaching workload, scheduling, resource utilization research, and assisting in planning and implementation of academic programs, such as orientation courses and seminars, for the academic competencies enhancement of the faculty members.		
3	**Professor**	**BVCOE, Katraj, Pune, India**	**Oct 2010 – June 2012**

	Teaching CAD/CAM/CIM, Robotics and Automation for senior-year Production Engineering students. Taught Synthesis and Characterization of Nanomaterials for M.S. students, Guided students for Ph.D., wrote research grants, and organized conferences and workshops to introduce the new M.S. (Nanotechnology) program.		
4	**Assistant Lecturer**	**BVCOE, Katraj, Pune, India**	**Dec 2003 – Dec 2006**
	Teaching Materials Science, Design of Machine Elements, CAD/CAM/CIM, Computer Graphics, C Programming, and Operations Research. Guiding senior year students for projects related to CAM/CAM. Paper evaluation, Conducting Term Work assessment, and practical examination for Pune University, India.		
5	**Lecturer**	**BVCOE, Katraj, Pune, India**	**July 1997 – Dec 2003**
	Teaching for 40 hrs/week subjects like Mechanics of Materials, AutoCAD, Production planning and control, and Manufacturing process and quality control for Sophomore Year Production Engineering Students. Conducting practicals for Computer Programming and Graphics in the Computer Lab for C/C++ and for Manufacturing Processes in the Workshop to make simple jobs using Turning, Drilling, and Grinding 4 hrs/week, Administer laboratory utilization and maintenance as In-charge of Computer Programming and Graphics.		

Volunteer:

- National Advisor Academic Initiatives – Fire and Security Association of India - **2013 – 2018**
  Achievement: About 15 MoU's across India, and transformed a 300 student memberships to 8000 students for FSAI across India in five years.
- Journal Research Article Reviewer for Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland, for Journals on Sustainability, Energy, Processes and Technologies.

Research Publications: Research Articles 35, Citations: 220, h-Index: 7

Reference - https://scholar.google.com/citations?hl=en&user=0_l4kQoAAAAJ.

- Journal paper - **Sachin Shendokar,** Frederick Aryeetey, Moha Feroz Hossen, Tetyana Ignatova, and Shyam Aravamudhan, "Towards Low-Temperature CVD Synthesis and Characterization of Mono- or Few-Layer Molybdenum Disulfide", Micromachines, 14, 1758. https://doi.org/10.3390/ mi14091758, 11 Sept **2023**.
- Journal paper - **Sachin Shendokar,** Moha Feroz Hossen, and Shyam Aravamudhan, "Towards Wafer-Scale ALD Synthesis of MoO_3 Sulfurized to MoS_2", MDPI ID: Materials-2825677, Submitted, Dec **2023**.
- Journal paper - Moha Feroz Hossen, **Sachin Shendokar,** and Shyam Aravamudhan, " Defects and Defects Engineering of 2D TMDC Materials", MDPI Manuscript ID: Nanomaterials-2827365, Submitted, Dec **2023**.
- Keynote Speaker –**Sachin Shendokar**, "Thermal Effects in ALD grown MoO_3 and CVT Sulfurized MoS_2", International Conference on Nanotechnology & Materials Science, **Sept. 25-27, 2023, Barcelona, Spain**
- Effect ofNanoparticles and Nanofibers on Mode I Fracture Toughness of FiberGlass Reinforced Polymeric Matrix Composites, Materials Science and Engineering B, Vol. 168, pp. 85–89, 2010.
- Patent for "Electrospun Nanofabric for Improving Impact Resistance and Interlaminar Strength," Publication No. US2011/0064949A, Inventors: Dr. R. L. Bolick, Dr. A. D. Kelkar, NC, USA, Dr. S. M. Shendokar, March 2010.

Research Grants:

- Ingram Hall Makerspace Digital Twin Project Award of $5000.00 for Project: "Development of a Digital Twin for HAAS CNC Milling Operation by implementing an Acoustic Emission Monitoring System", Texas State University, San Marcos, Texas. Jan 2026 to May 2026.
- Research Promotion Scheme (RPS) grant by AICTE, India, of Rs. 1,000,000.00 (One Million Rupees) for a project - Development and Characterization of Advanced Fiber Composites having secondary interlaminar nanofiber reinforcement for improvement in Mode-I fracture toughness.
- Research Project Funding: From Defense Material and Store Research and Development Establishment, DMSRDE, DRDO, Govt. of India funding of Rs. 1000.000.00 (One Million Rupees) for "Manufacturing of Panels of Plain and Complex Shapes using Composite Materials and Nanofibers, (Electrospinning Method) by VARTM Process, Kanpur, 2010-2013.