

BRAD J. NEIMAN

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OBJECTIVE

Project Engineer/ Product Engineer/ Process Engineer/ Manufacturing Engineer

HIGHLIGHTS OF QUALIFICATIONS

- 7 years experience in design, development and fabrication of products based on Smart Materials & Micro-Electro-Mechanical Systems (MEMS) for Energy Harvesting, Optical, RF, Inertial, Power, Gas and Fluid delivery applications.
- Analytical, detailed-oriented and innovative with multi-disciplinary problem-solving skills.
- Leader of cross-functional teams developing and manufacturing MEMS-based products.

SKILLS SUMMARY

Design & Modeling

- Development of electro-mechanical models predicting device performance
- Development of measurement methods
- Coursework in Product Development, Product Management, Manufacturing Strategy and Technology Commercialization

Process Engineering

- Running and analyzing Design of Experiments
- Statistical Process Control (Cpk, control charts, data collection operations, etc)
- Statistical Analysis (ANOVA, correlation, mean, standard deviation, box plots, etc)
- Documenting processes, test procedures, work requests, FMEA, etc
- Preparing materials for QS/ ISO 9001 audits

EXPERIENCE

Apr 2006 – Present

[AdaptivEnergy LLC](#)

Hampton, VA

Manufacturing Development Engineer

- Project Engineer and liaison for transferring actuator technology to Fortune 500 company for high-volume manufacturing.
- Lead project that developed the process technology for laminating layers to make stress-biased PZT-based actuator using Design of Experiments in [JMP](#) – reducing the cycle time by 87% .
- Project leader for investigating and developing manufacturing test system to screen out potential reliability issues in actuators (methods included Impedance Analyzer, X-ray and Interferometry).
- Developed documentation, implemented process controls and statistically analyzed performance metrics using [JMP](#) for the manufacturing of stress-biased actuators & energy harvesters (e.g. procedures, work instructions, FMEA & process controls).

Feb 2005 – Oct 2005

[wiSprv, Inc.](#)

Irvine, CA

Consulting MEMS Product Engineer

- Project leader for developing RF-MEMS switches for high-volume assembly processes. Analyzed root-cause of the beam deformation of actuators by running experiments to determine the impact of the fabrication process and design on MEMS device performance through Design of Experiments (DoE) and statistical analysis using [JMP](#).
- Developed methods and procedures for measuring topography of MEMS structures on die and 8” wafers using [WYKO NT8000](#) with SureVision.
- Responsible for product assembly, test and sending customer samples of RF-MEMS switches.

Oct 2004 – Jan 2005

[Rohm and Haas Electronic Materials](#)

Blacksburg, VA

Consulting MEMS Device Physics Engineer

- Developed and reported on physical-property based models (using [MATLAB SIMULINK](#)) for analyzing the design performance of power MEMS devices, with long operational life, for DARPA feasibility project.

- Jun 1998 – Dec 2001** **[Analog Devices, Inc.](#)** **Cambridge, MA**
Wafer Fab Process Engineer
- Quadrupled throughput and dramatically increased yield of critical MEMS process – transferred novel process for depositing LPCVD Poly-Si for the sensor layer of the MEMS accelerometer, using DoE and analysis with [JMP](#).
 - Led a team of 20 technicians that restored full functionality to entire BiCMOS MEMS fabrication line from two catastrophic events, within two shifts.
 - Analyzed, modeled, reported and presented design trade-offs of MEMS prototypes, used as a design tool for contracted customers and for their devices, using [MATLAB](#) and [Mathematica](#).
 - Led cross-functional team that isolated the source of a sub-parts per million MEMS mechanical failure due to three returns for automotive safety – resolving customers' concerns.

CO-OP & INTERN EXPERIENCES

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- Jan 2003 – Aug 2003** **[Fraunhofer Institute](#)** **Aachen, Germany**
Design & Control Systems Engineer
- Implemented the control system of ultra-precision, 5-Axis Polishing Module, using [MATLAB](#) [SIMULINK](#) interfacing with [dSPACE](#).
 - Project team leader responsible for designing (using Solid Designer) and fabricating a micro-assembly demonstrator of a Micro Electro-Optical Connector.
- Jun 1995 – Aug 1996** **[Central Intelligence Agency](#)** **Washington, DC**
Weapon Systems Analyst and Network Engineer
- Developed a weapon systems database website for use by the intelligence community, using Microsoft Access – Nominated for Exceptional Performance Award.
 - Top Secret Clearance (inactive).
- Jan 1995 – May 1995** **[Brookhaven National Laboratory](#)** **Upton, NY**
Research Technician, Center for Accelerator Physics
- Integrated, characterized and calibrated systems for operating experiments using a high-energy electron beam. Systems included a ultra-high vacuum system and 10-nm precision motion control system of micro-stepping motors.

EDUCATION

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- Aug 2003 – May 2004** **[Boston University](#)** **Boston, MA**
- Ph.D. student in [Manufacturing Engineering](#)
 - Specialty: Development and commercialization of MEMS-based products
- Jan 2002 – Sep 2003** **[Boston University](#)** **Boston, MA**
- M.S. in [Manufacturing Engineering](#), September 2003
 - Specialty: Design, Fabrication and Manufacturing of Micro Opto-electromechanical Systems
 - Research Project: *Design and Fabrication of a Microelectromechanical Tunable Optical Filter with Variable Finesse for Telecommunications Applications* – under direction of [Thomas G. Bifano](#); using [L-Edit](#), [LabVIEW](#), [MATLAB](#), [Mathematica](#), ProENGINEER, [WYKO](#), [Laser-Doppler Vibrometer](#) and SEM.
- Aug 1994 – May 1998** **[Pennsylvania State University](#)** **University Park, PA**
- B.S. in [Engineering Science](#) (integrates electrical, materials and mechanical engineering), Honors, May 1998
 - Specialty: Microdevices and Microfabrication
 - Thesis: *Design and Fabrication of a Microelectromechanical Accelerometer using Thin-Film PZT as Sensing Medium*; using e-Beam and thermal evaporation, thick photoresist (SU-8) processing and [L-Edit](#).
 - Awards: University Scholars Program and Joseph Marin Memorial Scholarship.