Alexander Kirk

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Education

Doctor of Philosophy Degree in Materials Engineering
Purdue University, in progress

Master of Engineering Degree in Mechanical Engineering
Texas A&M University, December 2004

Bachelor of Science Degree in Mechanical Engineering
University of Texas at Arlington, May 2000

Experience

Graduate Teaching Assistant
Purdue University, West Lafayette, Indiana, August 2006 – December 2006

- Teaching Assistant, MSE 235 Structures and Properties Lab, in progress

Design Engineer
Stanley Electric U.S. Company Inc., London, Ohio, January 2006 – July 2006

- Designed a front turn/front fog combination lamp for next generation mid-size Acura sedan
- Fabricated prototypes and mock-up models for thermal and optical testing
- Utilized Stanley's proprietary optical simulation software to optimize light design and performance
- Co-department leader of ISO14001 environmental compliance
- Hands-on manufacturing experience gained from work on multiple assembly lines
- Principal author of technical reports

Mechanical Engineer
Rolls-Royce Energy Systems Inc., Mount Vernon, Ohio, January 2005 – July 2005

- Engineered aero-derivative turbine engines into industrial platforms for electrical power generation and gas compression units located globally both on-shore and off-shore
- Responsible for liquid and gas fuel, intake air, and compressor cleaning system engineering
- Co-department leader of Product Standardization Program across three turbine engine platforms including the Avon, RB211, and Trent
- Identified a way to consolidate separate functions of a combined gas turbine compressor blade maintenance cleaning system and a low NO_x emissions dual fuel engine combustor can flushing system
- Created project specific process and instrumentation diagrams for direct customer use
- Rapidly solved manufacturing related problems that arose in the factory
- Engineering liaison between the world-wide sales marketing group and individual customers
- Principal author of product development technical reports
- Managed CAD drafters on-site

Graduate Teaching Assistant/Graduate Laboratory Assistant
Texas A&M University, College Station, Texas, September 2003 - June 2004

- Led 85 students on separate semester-long design projects involving motorcycle engine components and a multi-stage speed reduction gearbox
- Fabricated experiment workstations for fluid mechanics laboratory

Body Design Engineer
Honda Research & Development Americas Inc., Raymond, Ohio, June 2000 - August 2002

- Designed structural body components for the Honda Pilot SUV and Acura TL sedan

- Established detailed project schedules and organized interdisciplinary department meetings
- Managed domestic and foreign engineers and CAD contractors both on- and off-site
- Self-taught utilization of stress, vibration, and formability FE analysis to optimize part design
- Mapped out performance objectives of parts, developed parts by computer aided design, optimized parts with FEA, collaborated with an extensive number of test engineers, suppliers and factory personnel, coordinated logistics, and made detailed cost calculations
- Tailored my own kaizen-style approach to continually find and develop more efficient ways to design, optimize, manufacture, and assemble parts and component systems
- Practical hands-on knowledge gained through experience working on the assembly lines and production areas in Honda's high-tech automobile assembly factories
- Initiated and promoted the establishment of a new body design division technical library

Associate Technician
ISOA Inc., Richardson, Texas, December 1996 - August 1997

- Installed, custom modified, and provided technical support of Molecular Beam Epitaxy (MBE) and auxiliary equipment including vacuum pumps, water chillers, etc.
- Tuned equipment to successfully deposit II-VI semiconducting materials (ZnS, ZnSe, BeTe) on Si substrates for research involving advanced multi-quantum well heterostructure solar cells
- Provided operational support of Class 1000 clean room facility

Technical Skills

FEA	Nastran, Ansys, Fast Form 3D
CAD	CATIA v5/v4, Pro/E, AutoCAD
Software	MATLAB, LabView, Microsoft Excel, Word, PowerPoint, Access
Microscopy	LM, AFM
Manufacturing	mills, lathes, robotic welders, die design, injection molding, and other tools
Characterization	X-ray diffraction, FTIR spectroscopy, mass spectroscopy

Additional

Pi Tau Sigma Engineering Honor Society Member
American Society of Mechanical Engineers (ASME) Member
American Association for the Advancement of Science (AAAS) Member
Texas A&M University Mechanical Engineering Department Scholarship Recipient
Purdue University Ross Fellowship Recipient