

Mughees M. Khan

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EDUCATION

- MS – Aerospace Engineering** December '01
Texas A&M University, College Station, TX – GPA 3.78/4.0
- BS – Mechanical Engineering** June '97
Middle East Technical University, Ankara, Turkey

RELEVANT COURSES

- | Design | | Controls | |
|----------------------------------|--------------------------|--|-------------------------|
| ▪ Finite Element Analysis | ▪ Active/Smart Materials | ▪ Mechatronics | ▪ Adaptive Control |
| ▪ Computer Aided Engineering | ▪ Mechanical Vibrations | ▪ Dynamics & Modeling of Mechatronic Systems | ▪ Control System Design |
| ▪ Flexible Manufacturing Systems | ▪ Solid State Devices | ▪ C and Java | ▪ Real time DSP |
| | ▪ Continuum Mechanics | | |

RESEARCH EXPERIENCE

Graduate Assistant Research, Department of Aerospace Engineering, Texas A&M University, College Station, TX January '00 - present
Modeling, simulation and experimental correlation of shape memory alloy (SMA) spring elements for vibration isolation using simplified SMA material model and Preisach hysteresis model (MS thesis topic).

Graduate Assistant Non-Teaching, Center for Transportation Computational Mechanics Safety and Structural Systems Division, Texas A&M University, College Station, TX September '99 – December '99
Feasibility study on Crash Test Barrier Design using LS-DYNA, an explicit finite element package.

Research projects completed

- Stress and modal FEA and design of an automotive chassis subframe for desired spectral characteristics using SolidWorks and Cosmos. **Fall '01**
- Software development in C/C++ and MATLAB for modeling, simulation and preliminary design of an SMA based vibration isolation device. **Summer/Fall '01**
- Mechanical testing of SMA spring elements using MTS servo-hydraulic load frame in a LabView integrated measurement and automation environment. **Spring '01**
- Audio signal sampling, fixed point vs. floating point arithmetic and code optimization using TMS320C6201 and TMS320C6701 DSPs. **Spring '01**
- SMA actuator based shape control experiments of a cantilevered beam using LabWindows for control scheme implementation, data acquisition, analysis, and visualization. **Fall '00**
- Design and development of a Micro-controller (MC68HC11) based control system for an SMA actuated biomimetic hydrofoil. **Spring '00**
- Design and fabrication of a two-wheeled vehicle to balance itself while in motion and to remain unbalanced while stationary. **Spring '97**
- Software development using Delphi for flow visualization through gas turbine cycles. **Spring '97**
- Software development in C for estimating machining time from CNC part G-Codes. **Fall '96**

WORK EXPERIENCE

Project Engineer, Hagler Bailly Pakistan, associates of Hagler Bailly Inc., USA. October '97 - May '99
Hagler Bailly Pakistan comprises of highly qualified professionals providing advanced consulting services in the field of energy, environment and engineering. While working here I;

- Conducted surveys, research and analysis. Developed drawings and presentations for clients. Trained company and client staff on software packages. Supervisory duties included work planning, task distribution, progress monitoring of technicians, draftsmen and contract staffers. Other significant projects included
- Plume/Air Dispersion Modeling of a fertilizer plant emissions and an ammonia storage tank failure.
- Development of a Corrosion Monitoring System for a gas processing facility using pulse echo techniques.

Summer Intern, Zelin (Pvt.) Ltd., Karachi, Pakistan**August '96**

Zelin is a leading engineering and construction firm. I carried out design calculations for fuel storage tanks and accessories for an 117MW power plant and assistance in development of detailed Bill of Quantities.

Summer Intern, Zeltec (Pvt.) Ltd., Karachi, Pakistan**August '95**

Zeltec is a manufacturer of Low Voltage switchgear control panels and engineered cable tray systems. Performed statistical process control and feasibility study of truck body parts, switchboards and control panels. Developed assembly drawings for control panels and punching dies. Acquired expertise in developing G-Codes for CNCs.

PATENT

- Pending patent application for pseudoelastic shape memory alloy vibration isolator.

KEY PUBLICATIONS

- Khan M. M, Lagoudas D.C., "Modeling of Shape Memory Alloy springs using Preisach model for damping and passive vibration isolation", Proceedings of SPIE 2002 Smart Structures and Materials, March 17 – 21, 2002, San Diego, California, USA.
- Lagoudas D.C., Khan M. M., Mayes, J. J., "Modeling of Shape Memory Alloy springs for passive vibration isolation", Proceedings of IMECE'01, 2001 International Mechanical Engineering Congress and Exposition, November 11-16, 2001, New York, USA.
- Rediniotis, O. K., Wilson, L. N., Lagoudas D.C., Khan M. M., "Development of a Shape Memory Alloy actuated Biomimetic Hydrofoil", submitted to Journal of Intelligent Material Systems and Structures, 2001.
- Lagoudas D.C., Rediniotis, O. K., Khan M. M., "Applications of Shape Memory Alloys to Bioengineering and Biomedical technology", Proceeding of 4th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Technology", October 1999, Perdika, Greece.

SKILLS

Software: Adept in PIPE+, CADKEY, SolidWorks, Cosmos, MATHCAD, MATLAB, MS Office applications and MS Project. Experienced in programming using C, Assembly and familiar with Java. Also familiar with Lab Windows, ABAQUS, Hypermesh, LS-DYNA, ProE and ProMechanica. Accustomed to DOS, Windows NT and UNIX environments.

Hardware: Hands on experience using MC68HC11 (microcontroller), TMS3206201 (fixed point DSP), TMS3206701 (floating point DSP), oscilloscopes, sensors, encoders, ADC/DAC boards etc.

IDIOSYNCRASIES

Proficient in English, Turkish and Urdu. I enjoy reading, free hand sketching, traveling and sports.

WORK AUTHORIZATION

Eligible for F1 Practical Training Work Authorization

REFERENCES

See attached list