Anik Mahmood

M.Sc., Mechanical Engineering
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VALUE PROPOSITION:

Have a background on Structural Aspects of Design, Thermal Science, Control Systems, Electronic Packaging, Static & Dynamic analysis of Structures etc. Experienced on MEMS reliability design, Characterizing Material Properties, Thermal modeling, Stress analysis, Programming Language. Worked on projects sponsored by Texas Instruments (TI) like Structural Reliability analysis, Design for Reliability (DfR), Failure Modes and Effect Analysis (FMEA). Applied knowledge on finite element method to solve problems with thermo-mechanical loading, Shock & Vibration, Crack Propagation. Extensive hands-on experience on numerous lab experimental methods and techniques to perform material characterization and also standard and non-standard lab testing. Acted as a team leader to configure an experimental procedure and also instructed new students how to use all lab equipment.

HIGHLIGHT OF EXPERIENCE:

Computational Engineering Experience of 2 years; Design Engineering Experience of 5 years; Professional Experience of 2 years; Internship of 6 months

TECHNICAL EXPERTISE:

Performed Reliability analysis of PCBA by collaborating with Texas Instruments; Presented monthly technical report to direct supervisor
Trained on using many lab experimental procedures to characterize material properties at Texas Instruments, Hitachi Lab and at UTA
Performed parametric design study by analyzing thermal and transient loading on PCB-Package assembly and proposed effective design
Experienced in constitutive material modeling to analyze the thermo-mechanical behavior of IC packages
Performed Thermo-mechanical modeling and simulation to solve complex loading problems using FEM
Collaborated with other team members and together solved thermal convection problems analytically with MATLAB
Developed the method of analysis to solve a mechanical loading problem using FEA software e.g. ANSYS
Characterized material properties experimentally of composites e.g. (elastic modulus, storage modulus, CTE, dielectric properties, etc)
Thorough knowledge on material properties and tested material properties using standard and non-standard methods
Engineering Program: ANSYS, MATLAB, ABAQUS, LabVIEW, SolidWorks, CATIA V5, AutoCAD
Hands-on: Accelerated Thermal Cycling (ATC) Test, JEDEC standard Drop Test, UTM, TMA, DMA, Optical Microscope, Digital Image Correlation (DIC) technique, Scanning Electron Microscope; Dielectric Measurement: NOVOCONTROL, Faraday Cage; Data Acquisition System: LabVIEW

EXPERIENCE:

Intern: University of Texas at Arlington Research Institute (UTARI) Jan2016-May2016
Projects: To Design and Manufacture 1. Faraday Cage & 2. Vacuum Assisted Resin Transfer Molding (VARTM) System at High Precision & Manufacturing Lab, UTARI
Identified the goals; Planned & developed full parametric design; Performed Structural Analysis; Drafted drawings with GD&T
Documented and Presented all the reports; Kept notebook records
Calculated cost and labor, Prepared Bill of Materials (BOM); Interfaced with Supplier; Coordinated with Procurement Dept.
Prepared parts using machine shop tools; Assembled Faraday Cage, VARTM System in High Precision and Manufacturing Lab
Determined material properties for Continuous Carbon Fiber Composite (Sample provided by RIT)

Course Instructor, Mechanical Engineering Dept. (UTA) Dec2015-Jan2016
Instructed CATIA V5 to undergraduate students
Mentored 35 students for successful completion of course and achieve the highest grade

Graduate Research Assistant: Electronics MEMS and Nano-electronics System Packaging Center, UTA Sep2014-May2016
Project: Birth-to-Death Modeling Methodology for the Optimization of Custom Board Level Reliability
Project Goal: To find root cause of failure & Reliability Analysis of WCSP Assembly with thick and thin custom boards
Optimized the layer thickness of thin PCB by performing Root Cause Analysis of solder joint failure during drop impact load
Performed computational Finite Element Thermal, Shock and Vibration Analysis of PCB/Package assembly using ANSYS, ABAQUS
Researched Structural Integrity under thermal loading due to radial/axial crack propagation at the Back End of the Line (BEoL) process
Performed thermal management analysis on **ANSYS ICEPACK**; Solved heat transfer problem computationally by MATLAB
Analyzed warpage due to thermal loading computationally with ANSYS and experimentally with DIC technique
Characterized material properties using UTM, TMA, DMA (Elastic Modulus, CTE, Tg, Storage Modulus, Loss Modulus)
Collected system/experiment monitoring data with Event Detector, Data Acquisition System & LabVIEW program
Performed **Statistical Analysis** on experimental data to predict the characteristic life of the specimen

Graduate Research Assistant: Turbo-machinery Lab, UTA May2014-Jul2014
Modeled Air Foil Bearings; Assembled test rig to mimic turbine hot section to analyze Thermal Gradient of Air-Foil Bearings

Product Development Engineer; Unitech BD Limited (Air Conditioner Manufacturer), Bangladesh July2013- Dec2013
Designed product components with SolidWorks, AutoCAD; Calculated duct air flow
Monitored manufacturing assembly line; Assured paint quality of the product; Scheduled sheet metal cutting

Project Engineer; Ananda Shipyard & Slipways Ltd, Dhaka, Bangladesh May2012- June2013
Modeled 3D CAD design with SolidWorks, AutoCAD e.g. Hull, Bulkhead, Room details, Ladder, etc.
Managed 20 m Tugboat Project; Coordinated design approval liaison with certification companies: **Germanischer Lloyd** (GL), **Bureau Veritas** (BV); Prioritized production planning & scheduling and logistics support

EDUCATION:

The University of Texas at Arlington (UTA) Graduated: May 2016
Mechanical Engineering, M.Sc.; CGPA: 3.56
Course Highlight: *Structural Aspects of Design, Finite Element Methods, Convection Heat Transfer, Tribology, Introduction to Statistics-****Performed Special Project of Regression Analysis & Goodness of Fit Test***

Bangladesh University of Engineering & Technology (BUET) Graduated: March 2012
Naval Architecture & Marine Engineering (Mechanical Engineering Faculty), B.Sc.

PROFESSIONAL MEMBERSHIP: *ASME, SMTA, RINA*

PUBLICATIONS:

IMPACT OF PCB LAYER ORIENTATION ON THE DROP RELIABILITY OF WCSP BOARDS, ECTC, 2016
FEM SIMULATION OF TEMPERATURE DEPENDENT DROP IMPACT ON CSP PACKAGE ASSEMBLY, ITHERM, 2016