Ajay Bharadhwaj Mahalingam

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Education

M.Sc. Industrial and Systems Engineering, Northern Illinois University, Dekalb, Illinois, USA.   *May 2020.*
B.E in Electronics and Instrumentation Engineering, Anna University, Chennai, India.   *May 2015.*

Summary of Qualification

- Over five years of experience in electronics and semiconductor manufacturing design, test, evaluate and analysis (4.10 years in Industries, 4.8 years in research and academic projects)
- Strong knowledge on accelerated test methodologies for new product development (HALT, HASS)
- Strong electrical/mechanical knowledge, adept data analytics skills, interpret technical drawings
- Hands-on experience in reliability prediction, lifetime estimation, lean and six sigma tools
- Strong research experience developed though research projects involving SPC, PoF, RCA, FA, ATP
- Excellent verbal/written communication, decision-making, problem solver and acute attention to detail

Technical Skills

Programing Language: RStudio, Tableau, Python, AutoCAD, C, C++.
Application software: Minitab 18, LabVIEW, Open CV, Reliasoft, Weibull++, SEM, Microsoft Office Suite.

Industrial Experience

The Shelby Group*. Schaumberg, IL.*
Industrial Engineering Consultant   *(5 mos) Jan' 20-May'20.*
- Conduct time study for Procurement operation team and develop pricing model
- Establish KPI and provide VSD for future scheduling and propose future pricing models and ROI
- Implement DFSS and track key metrics to measure success and foster continuous improvement
- Develop SOW for Proc Ops team based on client's project scope

Uniqarta, Inc*. Fargo, ND.*
Reliability Engineer.   *(2 yrs 6 mos) Dec' 16- May19.*
- Perform accelerated test methods (HALT/HASS) for IC's, semiconductor electronics and SMT devices
- Design test fixtures, evaluate test methods, models and procedure for new product development
- Identify, validate FMEA, RCFA mechanical and electrical reliability issues to mitigate failures
- Review Product Change Notices, work with manufacturing team to support new product development
- Support validation team for obsolete parts, reliability test, data analysis of fault trends
- Conduct Failure Analysis through validation using root cause of failure data
- Participates in the final check-out of products, acceptance testing to assure functional specifications
- Develop detailed BOM and participate in client meeting to resolve product issues

Naraiuran Controls Pvt Ltd, *Chennai, India*
Reliability Technician.   *(2 yrs 4 mos) Apr '13- Jul '15.*
- Assess product and component reliability to resolve electronic failures of PCB and SMT devices
- Collaborate with R&D and supply chain team to implement strategic outcomes of projects
- Perform functional test of products and analyze test results for failure and design improvements
- Conduct Failure Analysis and provide detailed written and verbal reports to key stake holders
- Complete preventive maintenance routines and promote safe work environmental procedures

Research Experience

North Dakota State University *Fargo, ND.*
Graduate Research Assistant   *(1 yrs 10 mos) Aug '15- Dec '16.*
- Develop concise test plans, methodologies for semiconductor electronic components' reliability

- Determine reliability critical items, Physics-of-failure (PoF), FMEA, Statistical Process Control
- Identify and Document failure cause at component level consumer electronic products
- Measure performance of voltage, resistance, current, ADC devices.
- Perform data analysis, prediction models and lifetime estimation

Northern Illinois University *Dekalb, IL.*
Graduate Research Assistant *(10 mos) Aug'19-May'20.*
- Develop machine vision/imaging solution for automobile engine applications
- Assist mechanical engineering in reverse engineering processes and built 3D models
- Define production test limits based on component test gauge R&R studies, FMEA and field conditions
- Access reliability test data for performance, root cause for failure and develop test solutions

Engineering projects

Uniqarta Inc, *Fargo, ND.* *Jan' 18- Aug'18.*
Combined temperature and Humidity Accelerated testing
- Create DOE for ADT for IC's, semiconductor electronic and SMT devices.
- Track and identify time to failure, collect statistical data SPC and build reliability model
- Apply failure analysis X-Ray, SEM, Cu-Trace analysis and recommend process improvements

Accelerated Temperature cycling test *Aug' 18- Dec'19.*
- Test silicon die sample/SMT medical devices under thermal cycles in accelerated conditions
- Perform reliability test, document Failure analysis and communicate with design team
- Track and improve product MTBF, OEE and MTTF to adjust maintenance plan
- Monitor performance through RTDs, thermocouple and estimate in field lifetime.

Combined Temperature and Vibration Testing *Jan' 19- Apr'19.*
- Conduct shock and Vibration combined with thermal ESS on products under development
- Define and execute product validation test plan at component level.
- Collaborate and develop Preventive/Predictive Maintenance program PdM.

Advanced Lean Manufacturing Project. *Dekalb, IL.* *Aug'19-Dec'19.*
A case study on Crude Palm Oil production process implementing Lean Manufacturing technique
- Identify various alternatives of downtime in production line
- Provide process cycle efficiency that improve Value- added time in manufacturing plant
- Improved efficiency from 49% to 58% by implementing TPS tools: VSM, JIT, OEE, Kaizen

Continuous Improvement Project. *Dekalb, IL.* *Jan'20-May'20.*
Head printer book preparation process by reducing waste of raw materials
- Analyze and reduce wastage of ink and paper involved in printing process by process map, FMEA, 5why
- Improve performance operation by adding new KPI, poka-yoke and data collecting procedures
- Identify variations in output through statistical problem solving, SPC, Fishbone diagrams, CTQ
- Provide recommendations based on DMAIC and lean manufacturing tools

Affiliations

Member of Center of Quality, Reliability and Maintainability Engineering (CQRME).　　2016-Present.

Awards and Honors
- Awarded scholarship worth $17,000 by graduate school, North Dakota State University *Aug'16*
- Awarded Teaching & Research Assistantship in Dept. of Industrial Engineering at NDSU *Dec'16-Dec'17*
- Awarded research scholarship worth $14,000 at Northern Illinois University *Aug'19-May'20*

Certification and Workshops
- Six Sigma Green Belt certification on process improvements, IISE *Jan'18.*
- Certificate for completion of NI LabVIEW core1 and core2 course, National Instruments. *Jul'13.*
- Certificate for completion of DCS & PLC systems conducted by YOKOGAWA India Ltd. Jun'14.