John L. Evans, Ph.D.

Charles D. Miller Endowed Chair
Samuel Ginn College of Engineering
Thomas Walter Professor
Industrial & Systems Engineering
Auburn University
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Personal Address
1561 Dunbar Ct.
Auburn, Alabama 36830

Personal Data
Date of Birth: June 24, 1962
Family Status: Married, 2 children

EDUCATION

Ph.D., Industrial & Systems Engineering, University of Alabama- Huntsville, August 1991
M.S.E., Industrial & Systems Engineering, University of Alabama-Huntsville, August 1987
B.E.E., Electrical Engineering, Auburn University, June 1984

ACADEMIC EXPERIENCE

Auburn University
Charles D. Miller Endowed Chair, Ginn College of Engineering, February 2015- Present
Thomas Walter Professor, Industrial and Systems Engineering, October 2009 – Present
Interim Director – Thomas Walter Center, August 2014 – Present
Director, Southern Alliance for Advanced Vehicle Manufacturing – March 2013 – Present
Associate Director, Center for Advanced Vehicle Electronics, August 2001 - Present
Associate Professor, Industrial & Systems Engineering, August 2001 – September 2009

University of Alabama in Huntsville
Adjunct Assistant Professor, Department of Industrial and Systems Engineering and Engineering Management, The University of Alabama in Huntsville, August 1994 to August 2001.

Lecturer, Department of Administrative Science, The University of Alabama in Huntsville, August 1994 to August 1997.

Lecturer, Department of Industrial and Systems Engineering, The University of Alabama in Huntsville, August 1991 to August 1994.

INDUSTRIAL EXPERIENCE

DaimlerChrysler Huntsville Electronics, Huntsville, Alabama (1984 to 2001)

Manager, Strategic Business & Advanced Technology Engineering, January 2001- August 2001
Manager, Advanced Technology Engineering, May 1997 – January 2001
Supervisor, Advanced Electronics Packaging & Systems Analysis, August 1994 – April 1997
Technology Specialist – Advanced Technology Planning, August 1991 – July 1994
Senior Business Analyst – Business Planning, June 1990 – August 1991
Senior Financial Specialist – Business and Cost Planning, March 1988- August 1990
Lead Engineer – Product Design Engineering, April 1986 – March 1988
Design Engineer – Product Design Engineering, June 1984 – April 1986

PROGRAM MANAGEMENT at AUBURN

Interim Director – Thomas Walter Center – August 2014 - Present

The Thomas Walter Center (TWC) is responsible for developing educational opportunities between the College of Engineering and College of Business at Auburn. The TWC manages the Business Engineering Technology (BET) undergraduate minor program as well as various product innovation activities around campus. The TWC is expanding its role to include a new graduate program in Engineering Management, international education partnerships between the Colleges of Engineering and Business, corporate partnerships, graduate certificates, and outreach education.

Founder and Director – Southern Alliance for Advanced Vehicle Manufacturing (SAAV) – March 2014 – Present

The SAAV center is a multi-university program to promote research and education for vehicle manufacturing. The current university members include UA Huntsville and Tennessee Tech with planned expansion with Mississippi St., Clemson, and LSU. The center is currently in the process of applying for the National Science Foundation (NSF) Industry University Corporative Research Center (IUCRC) status.

Co-Founder and Associate Director – Center for Advanced Vehicle Electronics (CAVE) – August 1999 – Present

The CAVE program is an NSF IUCRC and has been responsible for over $40 Million in research at Auburn University since its inception in 1999. The center focuses on advanced electronics packaging and processing focused mainly on harsh environment electronics. CAVE is a multi-department center at Auburn and it considered the leading harsh environment electronics center in the US.

CONSULTING AND TRAINING EXPERIENCE

Founder and Principal Consultant, Huntsville Research Consortium, Huntsville, Alabama, 1992 – 1996.

FUNDED RESEARCH at AUBURN

** Individual Research totals approximately $7.0 Million from 2001 to 2015 **

Collaborative Research: Planning Grant: I/UCRC for Advanced Vehicle Manufacturing, National Science Foundation, Federal, March 2014 - September 2015 - $15,000 (Role – PI – 20% of Award with Dr. Virginia Davis, Dr. Sean Gallagher, Dr. Fadel Megahed, Dr. Andres Carrano)
Lead Free Solder Reliability Evaluation and Risk Mitigation – Phase 3 (of 3) - $485,000 – DoD (Restricted) December 1, 2014 – September 30, 2016 (90% of Award – with Dr. Michael Bozack and Dr. Jeff Suhling)
Lead Free Solder Reliability with Solder Doping - $1,1195,111 – DoD (Restricted) October 1, 2013 – March 31, 2018 (90% of Award – with Tom Devall, Dr. Michael Bozack, Dr. R. Wayne Johnson)
Extended Event Horizon Navigation & Wayfinding for Blind and Visually Impaired Pedestrians in Unstructured Environments $149,945 Funded US Department of Transportation - March 2013 to January 2015 (10% of Award – Dave Bevly – PI and Rich Sesek).
Lead Free Solder Reliability Evaluation and Risk Mitigation – Phase II (of 3) - $526,612 – DoD (Restricted) October 1, 2013 – November 30, 2014 (90% of Award – with Dr. Michael Bozack and Dr. Jeff Suhling)
Lead Free Systems Reliability with Aging for Harsh Environment Electronics- Phase II – NSF's Center for Advanced Vehicle Electronics - $300,000 – Role – PI (100% of Award) – October 2013– September 2015.
Center for Advanced Vehicle Electronics (CAVE) – 5 Year Renewal National Science Foundation I/UCRC - NSF Award $215,000 - National Science Foundation - Estimated industry funding based on previous 5 years -

$12,000,000, (with J.C. Suhling, P. Lall, G. Flowers, M. Bozack) – Role -Co-PI – (20% of total award) – Center Associate Director - December 2009 – August 2014.

Lead Free Solder Reliability Evaluation and Risk Mitigation – Phase I (of 3) - $628,481 – DoD (Restricted) March 1, 2012 – September 30, 2013 (100% of Award – Part of $7.1 Million Award with Dr. Wayne Johnson)

Lead Free Systems Reliability with Aging for Harsh Environment Electronics – NSF's Center for Advanced Vehicle Electronics - $400,000 – Role – PI (100% of Award) – October 2011– September 2013.

Lead Frame Electronic Sensors - $60,000 – Electrifil Corporation – March 1, 2012 – February 28, 2013 (50% of Award with Pradeep Lall)

3D Wafer Level Packaging Reliability – $50,000 - Engnent Enabling Technologies – Role PI (100% of Award – March 2011 – March 2012)

Lead Free Systems Reliability with Aging for Harsh Environment Electronics – US Army - $100,000 – Role PI (100% of Award – August 2011 – August 2013)

Lead Free Systems Reliability with Aging for Harsh Environment Electronics – NSF's Center for Advanced Vehicle Electronics - $100,000 – Role – PI (100% of Award) – October 2010 – September 2011

Harsh Environment Testing for Integrated Electronics – Phase VI - NSF's Center for Advanced Vehicle Electronics (CAVE) - $100,000 – Role – PI – (100% of Total Award) - Development of Overmolding Testing with COB and Low CTE Substrate for Next Generation Integrated Modules - October 2010 – September 2011.

Lead Free Reflow Process Development for Communication Systems – CoachComm - $25,000 – Role – PI (100% of Award_ - October 2010 to June 2011

Lead Free Systems Reliability with Aging for Harsh Environment Electronics – NSF's Center for Advanced Vehicle Electronics - $100,000 – Role – PI (100% of Award) – October 2009 – September 2010

Harsh Environment Testing for Integrated Electronics – Phase V - NSF's Center for Advanced Vehicle Electronics (CAVE) - $150,000 – Role – PI – (100% of Total Award) - Development of Overmolding Testing with COB and Low CTE Substrate for Next Generation Integrated Modules - October 2009 – September 2010.

Lead Free Systems Reliability for Harsh Environment Electronics – NSF's Center for Advanced Vehicle Electronics - $100,000 – Role – PI (100% of Award) – October 2008 – September 2009

Harsh Environment Testing for Integrated Electronics – Phase IV - NSF's Center for Advanced Vehicle Electronics (CAVE) - $150,000 – Role – PI – (100% of Total Award) - Development of Overmolding Testing with COB and Low CTE Substrate for Next Generation Integrated Modules - October 2008 – September 2009.

Harsh Environment Testing of ENIG Plating Substrates – Gul Technology –$30,000 - Role - PI– November 2008 – March 2009.

Harsh Environment Evaluation of Advanced Substrate Materials –Tripod – $50,000 - Role - PI -December 2008 – May 2009.

Simulation of Electronics Manufacturing Systems – Phase 2 - $46,500 – Role – Co-PI (20% of Award) – Continental Automotive Systems – October 2008 – March 2009

Simulation of Electronics Manufacturing Systems – Phase 1 - $46,500 – Role – Co-PI (20% of Award) – Continental Automotive Systems – June 2008 – September 2008

Electromechanical Interruption of Automotive Systems – US Navy – $75,000 - Role – PI – (50% of Award) – Vehicle Electronics Technology Investigation for US Navy – September 2007- September 2008.

Harsh Environment Electronics Substrates – Meiko Corp - $35,000 – Role PI – (100% of Award) – PCB Testing for Meiko – June 2007 – October 2007.

Harsh Environment Testing for Integrated Electronics – Phase III – NSF's Center for Advanced Vehicle Electronics (CAVE) - $200,000 – Role – PI – (100% of Total Award) - Development of Overmolding Testing with COB and Low CTE Substrate for Next Generation Integrated Modules - September 2007 – September 2008.

Advanced Capacitor Technology for Automotive Applications - NSF's Center for Advanced Vehicle Electronics (CAVE) - $75,000 – Role – PI – (100% of Total Award) – September 2007 – September 2008.

Printed Circuit Board Testing for Harsh Environment Applications – Siemens VDO Automotive - $75,000 – Role – PI (75% of Total Award) – Perform automotive testing requirements for Siemens VDO supply chain – December 2006 – June 2007.

Molding Materials Evaluation for Mechatronic Controllers – Henkel Electronics - $25,000 – Role – PI (100% of Total Award) – Evaluation of high temperature molding materials for harsh environment applications – December 2006 – December 2007

Harsh Environment Testing for Integrated Electronics – **Phase II** – NSF's Center for Advanced Vehicle Electronics (CAVE) - $225,000 – Role – PI – (100% of Total Award) - Development of Overmolding Testing Plan and Design for Next Generation Integrated Modules - October 2006 – September 2007.

Component Reliability for Harsh Environment Applications – PI - NSF's Center for Advanced Vehicle Electronics (CAVE) - $50,000 – October 2006– September 2007.

Testing Methods for Capacitor Cracking in Harsh Environments–Kemet Inc –$75,000 - Role - PI – (80% of Total Award) - Evaluation of New Testing Methods for Vehicle Systems Failures for Capacitors - – January 2006 – July 2006.

Reliability Testing of Lead-Free BGAs for Extreme Environment Electronics –Schlumgerger Role - $50,000 - Co-PI (With W. Johnson) – (75% of Total Award) - Reliability Testing for BGA Packages under -40C to +180C Temperature Cycling - – January 2006 – July 2006.

Harsh Environment Testing for Integrated Electronics – NSF's Center for Advanced Vehicle Electronics (CAVE) - $150,000 – Role - PI – (100% of Total Award) – Development of Overmolding Testing Plan and Design for Next Generation Integrated Modules - October 2005 – September 2006.

Component Reliability for Harsh Environment Applications – PI - NSF's Center for Advanced Vehicle Electronics (CAVE) - $100,000 – October 2005 – September 2006.

SnNiCu Lead-Free Solder Reliability Testing - Adtran – $37,500 - Role – PI – Evaluation of Lead-Free SnNiCu Alloy for Harsh Environment Electronics - March 2005 – December 2005.

Center for Advanced Vehicle Electronics (CAVE) – 5 Year Renewal National Science Foundation I/UCRC - NSF Award $215,000 - National Science Foundation - Estimated industry funding based on previous 5 years - $4,000,000, (with J.C. Suhling, P. Lall, G. Flowers, M. Bozack) – Role -Co-PI – (25% of total award) – Center Associate Director - September 2004 – August 2009.

Next Generation of Manufacturing Engineers for the Automotive Sector - National Science Foundation CSEMS – Co-PI (with Alice Smith (PI), P. Jones, D. Weatherby) - $400,000 Total Award – August 2004-July 2008

Accelerated Life Testing for Harsh Environment Electronics- National Science Foundation CAVE – $100,000 - Role – PI – (100% of Total Award) – Evaluation of Test Materials for High Temperature Substrate and Packaging Requirements (+150ºC), September 2004 – August 2005. ***** 75% of this funding is included in the CAVE Renewal Initiative Listed Above ****

Reliability Testing of Leadless and Small Grid Array Packages - National Science Foundation CAVE, $50,000 - Role - PI – (90% of Total Award) – Developing Test Vehicles and Performing Reliability Testing for Small IC Packages for Automotive– September 2004-August 2005. ***** 75% of this funding is included in the CAVE Renewal Initiative Listed Above *****

Reliability of FR4-06 Materials for Automotive Applications - Nan Ya PCB Corporation, - $9,500 Role – PI- September 2004 – February 2005

Harsh Environment Qualification of Printed Circuit Board- Gul Technologies-$6,500 – Role – PI – August 2004 – September 2004.

TLM Printed Circuit Board Material Evaluation - $7,500- KCE American Inc.- Role- PI-August 2004 – October 2004.

Evaluation of Ployclad Materials for Harsh Environments – Diversified Systems - $6,500 – Role - PI - August 2004 – October 2004.

High Temperature – Metal Back PCB Assembly - PI - $100,000 – National Science Foundation's Center for Advanced Vehicle Electronics (CAVE) – September 2003 – August 2004

Vehicle Component Reliability – Co-PI **–** (with P. Lall) - $50,000 – National Science Foundation's CAVE – September 2003- August 2004

Totally Integrated Power Distribution System Analysis – Phase II – PI – $24,500 DaimlerChrysler Huntsville Electronics – January 2004 – July 2004

Totally Integrated Power Distribution System Analysis – Phase I – PI – $24,200 DaimlerChrysler Huntsville Electronics – October 2003 – January 2004

Evaluation of Radio Manufacturing Process– PI - $14,970 – DaimlerChrysler Huntsville Electronics – July 2003 – December 2003

Reliability Testing – Powertrain Connector System – PI - $14,010 – DaimlerChrysler Huntsville Electronics – June 2003 – October 2003

Substrate and Test of Advanced Electronics Packaging Components- PI - $16,500 - ADTRAN, Inc. August 2002-March 2003

High Temperature Electronics – Harsh Environment Substrates – PI - $150,000 – National Science Foundation's CAVE - September 2002 – August 2003

Field Correlation with Accelerated Life Testing – PI - $50,000 – National Science Foundation's CAVE September 2002 – August 2003

Facility Reuse Feasibility Study, Phase I – Co-PI - $20,000 (PI- R. Zee - $250,000 Total Award) - SAIC – June 2002 – December 2002

NGC Controller Capability BGA Packaging, Module Vibration and Radiation Test Program – PI - $50,000 - Aguila Technologies – September 2001 – May 2002

NACOM INC-EMD LINE – Co-PI - $14,500 - (PI – J. Smith) - NACOM – June 2002 – December 2002

Micro Display Using SU8 Fabrication Process – PI - $79,000 - Brother International - June 2002 – September 2003

Component Reliability – Harsh Environment Electronics – PI - $100,000 – National Science Foundation's CAVE September 2001 – August 2002

Harsh Environment Substrate Reliability – PI - $100,000 – National Science Foundation's CAVE – September 2001 – August 2002

Field Correlation with Accelerated Life Testing – Co-PI – (PI – Alice Smith) - $50,000 – National Science Foundation's CAVE - September 2001 – August 2002

FUNDED RESEARCH at CHRYSLER

Center for Advanced Vehicle Electronics (CAVE) – Industry Investigator – R.W. Johnson (PI) – Approximately $4,000,000 Total Award – National Science Foundation and 10 Member Companies – August 1999-August 2004

Development of Material and Process Technologies to Support Robust, Low-Cost, Packaging Technologies for Electronics –Industry Investigator – R.W. Johnson (PI) - $10,000,000 Total Program – ARPA (MDA972-95-3-0021) – March 1995 – March 1997

Industry/University Interaction for Simulation – Industry Sponsor – P. Farrington (PI), J.J. Swain, S. Messimer – $100,000 Total Award - National Science Foundation (9353651)

DONATIONS ACQUIRED at AUBURN

Siemens AG (2012) - $25,000 – Donation of PLC Educational Systems for Auburn's Lego manufacturing lab

Muretec (2012) - $40,000 – Software Donation for Mini-Load Systems for Auburn's Lego manufacturing lab

Continental AG (2010) - $313,400 – Equipment Donations for New Manufacturing Education Lab (50% with T. Devall)

Continental AG (2010) - $255,200 – Equipment Donations for New Manufacturing Education Lab (50%)

Engent Technologies (2010) - $25,000 - Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for Advanced Electronics Packaging

Continental AG (2009) - $50,000 - Manufacturing Engineers for the Automotive Sector (MEAS) – Graduate Student Education for Electronics Materials and Testing

Engent Technologies (2009) - $15,000 - Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for Advanced Electronics Packaging.

Continental AG (2008) - $60,000 **–** Manufacturing Engineers for the Automotive Sector (MEAS) – Graduate Student Education for Electronics Materials and Testing.

Teledyne Continental Motors (2008) - $25,000 – Manufacturing Engineers for the Automotive Sector (MEAS) – Graduate Student Lean Manufacturing Education.

Engent Technologies (2008) - $25,000 - Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for Advanced Electronics Packaging.

Siemens VDO (2007) - $100,000 **–** Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for High Volume Applications.

Engent Technologies (2007) - $25,000 - Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for Advanced Electronics Packaging.

Emerson & Cuming (2007) - $15,000 - Manufacturing Engineers for the Automotive Sector (MEAS) - Expand Graduate Student and Faculty knowledge of Materials for Advanced Electronics Packaging.

Siemens VDO (2006) - $100,000 – Manufacturing Engineers for the Automotive Sector (MEAS)- Expand Graduate Student and Faculty knowledge of Inventory Management for High Volume Applications.

PROFESSIONAL SERVICE AND AWARDS

Board of Directors – Alabama Automotive Manufacturing Association – October 2014 – Present
Chair Committee– Harsh Environments Electronics – SMTA/CAVE – October 2015 – Chicago, IL
College of Engineering Researcher of the Year – Nominee - ISE Department - March 2015
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2014 – Chicago, IL
College of Engineering Researcher of the Year – Nominee - ISE Department - March 2013
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2013 – Dallas, TX
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2012 – Orlando, FL
ISE Faculty Member of the Year – 2012
IPC APEX Session Chair (2 Sessions) – Las Vegas 2011
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2011 – Dallas, TX
Business Engineering Technology (BET) Teacher of the Year – 2011
Luminary - Surface Mount Technology Association – SMTA 2010 (25th Anniversary)
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2010 – Orlando, FL
Conference Host – Alabama Automotive Manufacturing Association (AAMA) – Feb 2010 – Opelika, AL
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – October 2009 – San Diego, CA
Track Chairman (Harsh Environment Electronics – 2 Sessions) – SMTA International – Oct. 2009, San Diego, CA
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – August 2008 – Orlando, FL
Track Chairman (Harsh Environment Electronics – 2 Sessions) – SMTA International – August 2008, Orlando, FL
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – July 2007 – Indianapolis, IN
Track Chairman (Harsh Environment Electronics – 2 Sessions) – SMTA International – September 2008, Orlando, FL
Track Chairman (Harsh Environment Electronics – 3 Sessions) – SMTA International – September 2006, Chicago, IL
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – July 2006 – Indianapolis, IN
Track Chairman (Harsh Environment Electronics – 2 Sessions) – SMTA International – September 2005, Chicago, IL
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – July 2005 – Indianapolis, IN
Session Chair – Electronics Reliability- SAE World Congress – April 2005, Detroit, MI.
Track Chairman (Harsh Environment Electronics – 4 Sessions) – SMTA International – September 2004, Chicago, IL
Conference Chair – Harsh Environments Electronics – SMTA/CAVE – July 2004 – Dearborn, MI
Journal Reviewer – Society of Manufacturing Engineering – Journal of Manufacturing Systems
Track Chairman (Harsh Environment Electronics – 3 Sessions) – SMTA International 2003 – Chicago IL
Conference Chair and Founder – Harsh Environments Electronics-SMTA/CAVE- June 2003- Dearborn, MI
Track Chairman (Automotive Electronics – 2 Sessions) – SMTA International – Sept 2002 – Chicago, IL
Panel Review - National Science Foundation – July 2002
SMTA Technical Committee (2001 – Present)
Engineering Academy - UAH – "Distinguished Young Engineering Alumni" – May 2000
Co-Founder and Industrial Advisory Board Chairman – National Science Foundation's - Center for Advanced Vehicle Electronics (CAVE) – 1999
Session Chair – Surface Mount International Conference and Exposition – August 1998 – San Jose, CA
Session Chair – Seamless Vehicle – International Congress on Transportation Electronics – Convergence 96 – October 1996 – Dearborn, MI
Member Management Negotiation Team – DCX/UAW Local Contract – 1999
Member - Advisory Board - Center for Commercial Development of Space – Auburn -1993-2000
Member International Printed Circuits (IPC), Society of Automotive Engineers (SAE), Surface Mount Technology Association (SMTA), Institute of Industrial Engineers (IIE), Institute of Electrical and Electronics Engineers (IEEE)
Member Alpha Pi Mu - Industrial Engineering Honor Society
Member of Phi Kappa Psi Social Fraternity (Served 3 terms as Chapter President)
Solon E. Summerfield Scholar – Phi Kappa Psi (Auburn) 1982 and 1983

STUDENTS - ADVISING CHAIR

Ph.D. Students

Duoxing (John) Zhang - Graduated – May 2008

Dissertation "Real Options Evaluation of Financial Investment in Flexible Manufacturing Systems in the Automotive Industry"

Gokhan Sarpkaya – Graduated – May 2009

Dissertation "Integrated Material Diagnostics for Global Automotive Supply Chain"

Zhaozhi (George) Li – Graduated – May 2010

Dissertation "A Novel 3D Wafer Level Chip Scale Packaging Technology – Processing, Reliability Characterizations and Manufacturing Assessment"

Jiawei Zhang - Graduated - May 2012

Dissertation – "The Effects of Aging on the Reliability of Lead Free Fine-Pitch Electronics Packaging"

Namo Vijayakumar – Graduated - May 2013

Dissertation – "The Effects of Thermal Aging on Mechanical Reliability of Fine Pitch Electronics Packages"

Yamkelani Moyo – Graduated - December 2013

Dissertation "Developing a multidisciplinary best practice manufacturing education and Research lab for 21st century competitiveness"

Zhou Hai – Graduated - May 2014

Dissertation "Reliability of Lead-Free Electronic Package Interconnections Under Harsh Environmental Conditions"

Thomas Sanders – Graduation Spring 2016

Dissertation "Reliability of Aged SAC Solders for High Speed Computing Applications"

Chaobo Shen – Graduation May 2016

Dissertation " Lead Free Solder Aging Failure with Long-Term Temperature Aging"

David Fly – Expected Graduation- Fall 2016 – Proposal Fall 2013 (Distance Student)

Dissertation "3D Printing Thin Skinned Composites to Achieve the Strength-to-Weight Ratio of Aluminum".

Sivasubramanian Thirugnanasambandam – Expected Graduation Spring 2017 Proposal Fall 2105

Dissertation: "Impact of Solder Doping on Lead Free Solder Aging Under Mechanical Testing"

Patricia Gore – Expected Graduation Fall 2016 – Proposal Spring 2013

Dissertation "Creating a Mission Analysis Step to Improve the System Engineering Process"

Anto Jenson Raj Robert Raj – Expected Graduation May 2017

Dissertation "Reliability of Solder Doping on Lead Free Solder Aging Under Thermal Conditions"

Sharath Sridhar – Expected Graduation May 2017

Cong Zhou – Expected Graduation May 2017

Seth Gordon – Expected Graduation Spring 2018

Masters Students

Elliott Crain – MS – Graduated August 2003 – Thesis – "Optimal Material Selection for a Specific Harsh Environment Application for Metal-Backed Technology on an FR4 Substrate"

Nathan Vogt – MS – Graduated May 2004 – Thesis- "Method for Correlating Field Data to Accelerated Life Testing for Harsh Environment Electronics"

Jared Davis – MS – Graduated August 2004 – Thesis – "Impact of Metal Backing on Component Reliability Using Laminate Substrates in Harsh Environments"

Charles Mitchell – MS – Graduated May 2006 – Thesis- "Impact of Lead-Free Solder Balls using SnPb Solder Paste for Grid Array Packages"

Josh Ridenour – MS – Graduated August 2008 – Thesis – "Reliability of Overmolded Powertrain Technology for Automotive Applications"

Jingyun Li – MS - Gr**a**duated May 2009 – Thesis "Alternate In-Situ Environmental Testing by Matrix Design"

Arunkumar Bandaram – MSE – Graduated August 2011 – Thesis – "Reliability of Solder Attachment Options with Lead-Free for .4mm Micro BGA Packages"
Wes Swaim – MSE – Graduated August 2011 – Thesis – "SMT Line Improvements for High Mix, Low Volume Electronics Manufacturing"
Sivasubramanian Thirugnanasambandam – MSE-Expected Graduation Spring 2013 – Thesis – Component Level Reliability on Different Dimensional Flip Chip Assemblies Subjected to Extreme Temperatures"
Surendraprassath Govindan Indirani- MSE- Expected Graduation May 2013 – Thesis "Reliability of PowerFLAT MOSFET in Harsh Environment Application" –
Venubabu Vulasa – MISE – Graduated May 2007 – Project – "An Estimate of Non-legal, Technical Processing Capacity of University Offices of Technology Transfer"

Andrew Phelps – MISE – Graduated August 2007 – Project – "Ergonomics Evaluations of Assembly Workers at an Automotive Manufacturer and Ergonomic Based Job Rotation"

Serdar Yucel – **MISE** - Graduated August 2007 – Project- "Simulation of a Mini-Load Supply for High Volume Electronics Manufacturing"

Omer Ozbek – MISE – Graduated May 2008 – Project – "Trade Show Logistics: Industry Overview and a Case Study"

Hung-chun Pai – MISE – Graduated – December 2008 – "Reliability of Conductive Adhesives for Harsh Environment Electronics"

Vijay Murugesan – **MISE** – Graduated – May 2009 – "Affect of Exchange Rate Fluctuations on Global Supply for Automotive"

Tao Zhang – **MISE** - Graduated - December 2010 – Project "Overmolding of Electronic Modules – Reliability and Manufacturing"

Phillip Allen – **MISE** - Graduated – May 2010 – "Virtual Integration of OS&E Knowledge Systems for Automotive Manufacturing"

Jeffery Cobb – **MISE** - Graduated – May 2010 – "Mixed Alloy Assembly of Lead-Free Solder"

Radhen Mathuria – **MISE** – Graduated December 2010 (no project)

Brandon Daugherty – MISE – Graduated May 2011
Raja Chezhian – **MISE** – Graduated December 2011
Jennifer Coles – MISE – Graduated May 2013

Seth Gordon – **MISE** – Expected Graduation – Spring 2016

Students – Committee Member

Qing Wang – PhD – Electrical Engineering – December 2005

Yueli Liu – PhD – Electrical Engineering – December 2005

Pradip Jadhav – MSE – Industrial and Systems Engineering – December 2005

Arnold Intraboona – MSIE – Industrial and Systems Engineering – December 2005

Taylor Lightfoot – MSIE – Industrial and Systems Engineering – May 2006

Mohamed Ben Jazia – MSIE – Industrial and Systems Engineering – May 2006

Yi Liu – PhD – Electrical Engineering – August 2006

Abishek Ramesh – PhD – Mechanical Engineering – December 2006

Scott White – MSIE – Industrial and Systems Engineering - May 2007

Aditya Konduru – MSIE – Industrial and Systems Engineering – May 2007

Dhananjay Panchagade – PhD – Mechanical Engineering - May 2007
Chad Rodekohr – PhD – Physics – August 2008 (Outsider Reader)
Hosup Kin – MISE – Industrial and Systems Engineering – Spring 2009
Taner Bak – MSE – Industrial and Systems Engineering – Spring 2009
Chen Chen – PhD – Mechanical Engineering – Summer 2009
Anil Nelaturi – MSE – Mechanical Engineering – December 2011
Rui Zhang – PhD – Electrical Engineering – December 2011
Cai Xijie – PhD – Mechanical Engineering – December 2012
Zhenzhen Shen – PhD – Electrical Engineering – December 2014
Yao Te Tsai – PhD – Industrial Engineering – December 2015

Fang Yu – PhD – Electrical Engineering – May 2016
Chong Li – Ph.D. – Mechanical Engineering – May 2016 (Outside Reader)
Bin Wang - Ph.D. – Industrial Engineering – May 2016

UNITED STATES PATENTS

U.S. Patent - # 5,438,513 - MCM for ROM-AID Devices (1995) – Device for engine controller diagnostic analysis during program development employing multichip module technology – Production Usage – 1992

U.S. Patent - # 5,038,099 - Miniature Air Core Gauge (1991) – Very small air core gauge for use in automotive instrumentation

U.S. Patent - # 4,821,836 - Speedometer/Door Lock System (1989) – Electronic speedometer automatic door lock system for passenger protection. Feature integrated into microprocessor control systems 1992

U.S. Patent - # 4,836,792 - Motor Connector - Electric Speedometer (1989) – Small connector for stepper motor odometer drive within the electric speedometer

U.S. Patent - # 4,728,920 - Oil Pressure Transducer (1988) – Improved pressure transducer designed to measure oil pressure

JOURNAL ARTICLES ACCEPTED/PUBLISHED
(* Denotes Student of Dr. Evans)

Chaobo Shen*, Cong Zhao*, Zhou Hai*, Jiawei Zhang*, J.L Evans, M.J Bozack, J.C Suhling. "Reliability Study and Failure Analysis for Surface Finishes on Sn-Ag-Cu Solder Joints during Thermal Cycling", Submitted for Publication Journal of Mechatronics (Accepted for Publication January 2016).

Zhou Hai*, Jiawei Zhang*, Chaobo Shen*, John L. Evans, Michael J. Bozack, Munshi M. Basit, Jeffery C. Suhling, "Reliability Comparison of Aged SAC Fine-Pitch Ball Grid Array Packages Versus Surface Finishes", *IEEE Transactions on CPMT*, Vol. 5, No. 6, June 2015.

Zhou Hai*, Jiawei Zhang*, Chaobo Shen*, E. K. Snipes, J. C. Suhling, M. J. Bozack and J. L. Evans, Auburn University "Reliability Degradation of SAC105 and SAC305 BGA Packages under Long-Term, High Temperature Aging," *J. SMTA*, vol. 27, no. 2, pp. 11-18, 2014.

Zhou Hai*, Jiawei Zhang*, Chaobo Shen*, J. L. Evans, M. J. Bozack, and J. C. Suhling, "Reliability Performance of Lead-Free SAC Solder Joints on ENIG and ENEPIG Subject to Long-Term Isothermal Aging," *J. Mechatronics*, 2014, vol 13, no. 3, pp. 87-96.

Zhou Hai*, Jiawei Zhang*, Chaobo Shen*, E. K. Snipes, J. C. Suhling, M. J. Bozack and J. L. Evans, Auburn University "Reliability Degradation of SAC105 and SAC305 BGA Packages under Long-Term, High Temperature Aging," *J. SMTA*, vol. 27, no. 2, pp. 11-18, 2014.

Jiawei Zhang*, Sivasubramanian Thirugnanasambandam*, John L. Evans, M. J. Bozack, and Richard Sesek "Thermal Aging Effects of on the Thermal Performance of Lead-Free Fine Pitch Packaging", accepted for publication *IEEE Transactions on CPMT*, December 2013

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M. J. Bozack, Richard Sesek, Yifei Zhang, J. C. Suhling "Correlation of Aging Effects on Creep Rate and Reliability in Lead Free Solder Joints", SMTA Journal, Volume 25, Issue 3, 2012, page 19-28.

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