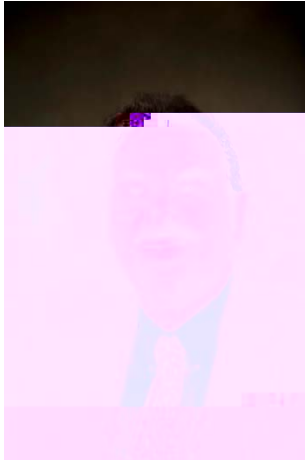


## CURRICULUM VITAE



### **Hamid M. Lankarani**

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### **AREAS OF INTEREST**

Automotive and Aircraft Crashworthiness, Occupant Protection of Transportation Systems, Biodynamics, Injury Biomechanics, Multibody Dynamics, Structures, Impact Dynamics, Mechanical Systems Analysis and Design, Computer-Aided Design

### **EDUCATION**

Doctor of Philosophy in Mechanical Engineering  
University of Arizona, Tucson, Arizona, August 1988

Master of Science in Mechanical Engineering  
University of Iowa, Iowa City, Iowa, December 1983

Bachelor of Science in Mechanical Engineering  
University of Iowa, Iowa City, Iowa, December 1981

### **PROFESSIONAL CAREER**

2001-date	Professor, Department of Mechanical Engineering Interim Department Chair (January - June 2005) Senior Fellow, National Institute for Aviation Research Wichita State University, Wichita, Kansas
1994-2000	Associate Professor and Bombardier/Learjet Fellow Department of Mechanical Engineering Fellow, National Institute for Aviation Research Wichita State University, Wichita, Kansas
1989-1994	Assistant Professor, Department of Mechanical Engineering Faculty Associate, National Institute for Aviation Research Wichita State University, Wichita, Kansas

- 1988-1989      Adjunct Assistant Professor  
 Department of Aerospace and Mechanical Engineering  
 University of Arizona, Tucson, Arizona
- 1984-1988      Teaching and Research Assistant  
 Computer-Aided Engineering Laboratory  
 Department of Aerospace and Mechanical Engineering  
 University of Arizona, Tucson, Arizona
- 1985-1986      Multibody Dynamics and Finite Element Structural Analyst  
 CASA-GIFTS Structural Software Company  
 Tucson, Arizona
- 1981-1983      Teaching and Research Assistant  
 Center for Computer-Aided Design  
 University of Iowa, Iowa City, Iowa

### **PROFESSIONAL SOCIETIES**

- American Society of Mechanical Engineering – Elected Fellow (2005), Member (1980-2004),  
 Executive Member in charge of College Relations (1992-present) and Elected Treasurer  
 (1989-1991) for the Central Kansas Section
- Society of Automotive Engineers -- Member (1989-present)
- SAE Aircraft Seat Standards Committee – Contributing Member (1994-present)
- American Society of Engineering Education -- Member (1989-present)
- American Institute of Aeronautics and Astronautics -- Member (1994-present)
- European Mechanics Society -- Member (1998-present)

### **HONORS AND AWARDS**

- Inducted to the Order of the Bender of Twigs at Wichita State University for completing 25 years  
 of service as an educator, 2014
- Sustained Research Production and Collaboration Award at the European Conference on  
 Mechanism Sciences (EUCOMES), Portugal, 2014
- Wichita State University Engineering Council's Polished Professor award (voted by students):005 Tw[(Wifa2787

Winner of the 1993 Society of Automotive Engineers *Ralph R. Teetor* Outstanding Educator  
Award for significant contribution to *teaching, research, and student involvement* (one of  
the 15 selected nationwide)  
Recipient of the Wichita State University College of Engineering Dwane and Velma Wallace  
1993 Outstanding Educator Award toward

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- Moradi, R., Kh-Beheshti, H., and Lankarani, H.M., "Lumbar Load Attenuation for Rotorcraft Seated Occupants Using an Effective Seat Energy-Absorber Systems Design Methodology," *Central European Journal of Engineering (CEJE)*, Special Issue on *Blast and Impact Performance of Engineering Structures*, Paper No. CEJE-S-12-00050, Vol. 2, No. 4, pp. 562-577, 2012. [DOI: 10.2478/s13531-012-0030-4].
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- Costa, J., Peixoto, J., Moreira, P., Soto, A.P., Flores, P., and Lankarani, H.M., "Influence of the Hip Joint Modeling Approaches on the Kinematics of Human Gait," ASME 2015 International Design Engineering Technical Conferences (IDETC), 11<sup>th</sup> International Conference on Multibody Systems, Nonlinear Dynamics, and Control (MSND), Symposium MSND-17: Biomechanics, Paper No. DETC2015-46340, 11p, Boston, Massachusetts, August 2015.
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- Patil, S., Tay, Y.Y., Thorbole, C.K., and Lankarani, H.M., "Vehicle Mass Optimization for

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- Umstead, C., Tay, Y.Y., and Lankarani, H.M., “An Internal Gyroscopic Micro-mechanism for Development of Lateral Deviation of a Projectile,” 5<sup>th</sup> European Conference on Mechanism Science EUCOMES 2014, 8p, Guimarães, Portugal, September 2014.
- Patil, S., and Lankarani, H.M., “Modeling and Characterization of Spot Weld Material Configurations for Crash Analysis,” Mech-Aero 2014 (International Conference and Exhibition on Mechanical and Aerospace Engineering), 6p, Philadelphia, Pennsylvania, September 2014.
- Flores, P., and Lankarani, H.M., “An Overview of Several Formulations for Dry and lubricated Revolute Joint Clearances in Rigid-Multibody Mechanical Systems,” ASME 2014 International Design Engineering Technical Conferences (IDETC), 10<sup>th</sup> International Conference on Multibody Systems, Nonlinear Dynamics and Control (MSND), Paper No. DETC2014-34399, 14p, Buffalo, New York, August 2014.
- Tay, Y.Y., Moradi, R., and Lankarani, H.M., “A Numerical Analysis of Pre-deployment Effect of Side-Impact Airbags in Reducing Occupant Injuries,” 2013 ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2013-63234, 10p, San Diego, California, November 2013.
- Zhang, Z., Xu, L., Flores, P., and Lankarani, H.M., “A DOE- and Kriging-based Model for Studying the Dynamics of Multibody Mechanical Systems with Revolute Clearance Joints,” 2013 ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2013-64667, 13p, San Diego, California, November 2013.
- Thorbole, C.K., Jorgensen, M., and Lankarani, H.M., “Assessment of the Dynamic Response of a Lumbar Spine Functional Unit Under Axial Compressive High Loading Rate: Outcome on the Axial Disc Bulge and Its Relation to the Load Magnitude,” 2013 ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2013-66019, 14p, San Diego, California, November 2013.
- Koshy, C.S., Flores, P., and Lankarani, H.M., “A Computational and Experimental Analysis of Mechanical Systems with revolute Clearance Joints,” ASME 2013 International Design Engineering Technical Conferences (IDETC), 9<sup>th</sup> International Conference on Multibody Systems, Nonlinear Dynamics and Control (MSND), Paper No. DETC2013-12595, 7p, Portland, Oregon, August 2013.
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- Moradi, R., Ramamurthy, S., Thorbole, C., and Lankarani, H.M., “Kinematic Analysis of a Motorcyclist Impact on Concrete Barriers under Different Road Conditions,” 2010 ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2010-37461, 8p, Vancouver, Canada, November 2010.
- Moradi, R., Thorbole, C., McCoy, M., and Lankarani, H.M., “Biodynamic Modeling of a Pedestrian Impact with a Rigid Frontal Guard of a Utility Vehicle,” 2010 ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2010-37458, 9p, Vancouver, Canada, November 2010.
- DeWeese, R., Moorcroft, D., Thorbole, C., and Lankarani, H.M., “Evaluation of the Injury Potential Due to Aircraft Head-Up Display Systems Using the Head Injury Criteria Component Tester,” (oral with abstract review only), 6<sup>th</sup> Triennial International Fire and Cabin Safety Research Conference, Atlantic City, New Jersey, October 2010.
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- Thorbole, C., Lankarani, H.M., and Costello, T., “Temperature Effect on the Dynamic Characteristics of the Aircraft Seat Cushion,” Proceedings of IMECE2009, ASME International Mechanical Engineering Congress and Exposition, Paper No. IMECE2009-12164, 7p, Lake Buena Vista, Florida, November 2009.
- Ghati, Y., Menon, R., Olivares, G., and Lankarani, H.M., “Performance Evaluation of Child Safety Seats in Far-Side Lateral Sled Tests at Varying Speeds,” 15p, 2009 Association for the Advancement of Automotive Medicine (AAAM) 53<sup>rd</sup> Annual Conference, Paper No. 9B-0338, 15p, Baltimore, Maryland, October 2009.
- Nagarajan, H., and Lankarani, H.M., “An Integrated System for Transport Aircraft Seat Certification by Computational Modeling and Analysis,” (abstract only), African Conference on Computational Mechanics (AfriComp), Sun City, South Africa, January 2009.
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Deshpande, Anand, “Characterization of CFRP and GFRP Composite Materials at High Strain Rate Tensile Loading,” Masters Thesis, Wichita State University, August 2006. Current Employer: Cessna Aircraft Co., Bangalore, India, Wichita, Kansas.

Shenoy, Sudhir S., “Energy Absorption of a Car Roof Reinforced with a Stiffened Composite Panel in the Event of a Rollover,” Masters Thesis, Wichita State University, May 2006. Current Employer: Butler International, Decatur, Illinois.

Shetty, Sandeep, “Finite Element Modeling and Energy Absorption Characteristics of a Hybrid Structure - Composite Wrapped on a Square Metal Tube,” Masters Thesis, Wichita State University, May 2006. Current Employer: Cummins, Team Lead, Columbus, Indiana.

Venkateshappa, Harish, “Analysis of Bulkhead Honeycomb Core Properties under Different Parametric Conditions for the Head Injury Criteria Compliance in Aerospace Applications,” Masters Thesis, Wichita State University, May 2006. Current Employer: Apple Computers, Cupertino, California.

Kagi, Bahubali C., “Study of the Response of Fiber-reinforced Polymeric Composite Beam Under Dynamic Loading and Hygrothermal Environment,” Masters Thesis, Wichita State University, May 2006. Current Employer: Oracle, Chicago, Illinois.

Pai, Krishna, “Modeling of Rollover Protective Structure and Falling Object Protective Structure Tests on a Composite Cab for Skid Steer Loaders,” Masters Thesis, Wichita State University, April 2006. Current Employer: Caterpillar, Decatur, Illinois.

Bhamare, Vinay V., “Transverse Impact Characteristics of Adhesively Bonded Composite Single Lap Joint,” Masters Thesis, Wichita State University, April 2006. Current Employer: Caterpillar, Decatur, Illinois.

Bangalore, Krishnaprasad, "Protective Bollard Design for High Speed Impact Energy Absorption," Masters Thesis, Wichita State University, April 2006. Current Employer: Caterpillar, Decatur, Illinois.

Honnagangaiah, Kumar, "Modeling and Analysis of a Car Composite Front Sub-frame Rails and Its Corresponding Occupant Injuries in a Crash," Masters Thesis, Wichita State University, March 2006. Current Employer: Ricaro Seating Americas, Fort Worth, Texas.

Sheshadri, Ashwin, "Design of Composite Polymer Tubes and Frames for Improved Side Impact Protection," Masters Thesis, Wichita State University, February 2006. Current Employer: Ricaro Seating Americas, Fort Worth, Texas.

Deo, Anirudha P., "A Reverse Engineering Approach for Development and Validation of a Belt-Positioning Booster Child Seat Model," Masters Thesis, Wichita State University, December 2005. Current Employer: Cessna Aircraft Co., Wichita, Kansas.

Krishnamurthy, Vikram, "A CAE-Based Study on Reduction of Crash Aggressivity of Pickup Trucks," Masters Thesis, Wichita State University, December 2005. Current Employer: B/E Aerospace, Tucson, Arizona.

Mariyanna, Vivek, "Energy-Absorption Mechanisms in Corrugated Sandwich Panels," Masters Thesis, Wichita State University, October 2005. Current Employer: Goodrich Aerospace, San Diego, California.

Marudhamautha, Karthikeyan, "Analysis of 3+2 Point Belt System and Occupant Responses in a Dolly Rollover Crash of a Pick-Up Truck," Masters Thesis, Wichita State University, September 2005. Current Employer: General Motors, Troy, Michigan.

Basavaraju, Divaker, "Analysis of Composite Beams for Side Impact Protection," Masters Thesis, Wichita State University, October 2005. Current Employer: AAR Cargo Systems, Livonia, Michigan.

Tasneem, Nazia, "Parametric Analysis of Split Hopkinson Pressure Bar Apparatus for Testing Composite Materials," Masters Thesis, Wichita State University, November 2005. Current Employer: Truth Hardware Design, Minneapolis, Minnesota.

Hassan, Mohamad Amer, "Comparison of the Structural Damage and Occupant Injuries Corresponding to a Vehicle Collision Onto a Pole Versus a Flat Barrier," Masters Thesis, Wichita State University, October 2005. Current Employer: J.B. Dwerlkotte, Inc., Wichita, Kansas.

Nagendra, Sriranga, "Calibration of an ACPD Crack Growth Measurement System for Short Cracks in Aluminum Alloys," Masters Thesis, Wichita State University, July 2005. Current Employer: Nordam Group (Repair Division), Tulsa, Oklahoma.

Mangamuri, Chiranjivi, "Dynamic Behavior of the Composite Beams Subjected to a moving Load with a Constant Velocity," Masters Thesis, Wichita State University, November



- Technology Advancement,” Masters Project, Wichita State University, May 2005.  
Current Employer: Hoff Welding Products, Denton, Texas.
- Korrapati, Padmaja, “Comparison of a Hybrid III Standing Dummy and a Human Pedestrian Model Kinematics in Vehicle-Pedestrian Collisions,” Masters Thesis, Wichita State University, March 2005. Current Employer: Butler International, Aurora, Illinois.
- Devireddy, Kiran, “Performance of a Child Restraint Using the Latch System in Full-Frontal and Offset-Frontal Impacts,” Masters Thesis, Wichita State University, March 2005. Current Employer: Data Warehousing, New Jersey.
- Nelluri, Kranthi, “Kinematic Analysis of a Motorcyclist with and without a Tank-Mounted Airbag in Passenger Car Collision Environment,” Masters Thesis, Wichita State University, December 2004. Current Employer: Entegee Corp., Dubuque, Iowa.
- Nekkadapu, Naresh, “Biofidelity of Human Body Models and Comparison to Dummy Models in Side Impact Crash Scenarios,” Masters Thesis, Wichita State University, December 2004. Current Employer: Cummins, Product Validation Group Lead, Columbus, Indiana.
- Bannur-Nagaraj, M., “Design and Analysis of a New Energy-Absorbing Pliers-Guard for Heavy Truck Under-ride Impacts,” Masters Thesis Wichita State University, December 2004. Current Employer: Caterpillar, Peoria, Illinois.
- Sahare, Lalit-kumar, “Flexible Chassis and Seat Mechanism for Frontal Impact Protection,” Masters Thesis Wichita State University, December 2004. Current Employer: Nissan Corporation, Detroit, Michigan.
- Kanetkar, Gunesh, “A Methodology for Carrying Out Real-World Rollover Simulations and Occupant Safety Evaluation in J-Turn, Fishhook, and Ditch Rollovers,” Masters Thesis, Wichita State University, December 2004. Current Employer: TASS Americas, Livonia, Michigan.
- Sripuram, Vasudha, “Effect of Various Parameters on the Biomechanics of Cervical Spine in Rear-End Collisions.” Masters Thesis, Wichita State University, November 2004. Current Employer: El Paso, Texas.
- Gopalarao, Sudhi B., “Contours of Head Injury Criteria for Impacts on Various Aircraft Bulkheads,” Masters Thesis, Wichita State University, December 2004. Current Position and Employer: Senior Research and Development Engineer, Fountainhead Groups, New York.
- Siruvole, Satish, “Studying the Effectiveness of External Airbag as a Safety Device in Side Impact protection,” Masters Thesis, Wichita State University, November 2004. Current Employer: TASS Americas, Livonia, Michigan.
- Maletz, Michael, “Comparative Analysis of Structural Crash Behavior and Corresponding Occupant Responses in Vehicle-To-Vehicle Impact Scenarios,” Master Thesis, Graz University of Technology, Co-advised with Professor Hermann Steffan, October 2004. Current Status: Assistant Professor of Production, Chalmers University, Sweden.
- Krishnaprasad, Sriram, “Performance Comparison Between Three- and Four-point Seatbelt Systems for Frontal and Side Impact Protection,” Masters Thesis, Wichita State University, March 2005. Current Employer: MWTB&R, Wichita, Kansas.

- Thesis, Wichita State University, August 2004. Current Employer: Electrolux North America, Webster City, Iowa.
- Mahalingam, Arun, "Nonlinear Finite Element Analysis of Vehicle Side Impact," Masters Thesis, Wichita State University, July 2004. Current Employer: Asystem-Airbus, Bangalore, India.
- Long, Teng-Fei, "Mechanical Joint Analysis and Control for Prosthetic Ankle Design," Masters Thesis, Wichita State University, May 2004.
- Brown, Tyler, "Analysis of Energy-Absorbing Seat Concepts," Masters Project, Wichita State University, April 2003. Current Employer: Wichita Technology Corporation, Wichita,

2003. Current Employer: Gulfstream, Savannah, Georgia.
- Shewtanasoontorn, D., "Mathematical Modeling and Parametric Study of Shimmy Effect for an Aircraft Nose Landing Gear System," Masters Thesis, Wichita State University, March 2003.
- Balasundaram, N.B., "Analysis of Neck Injury for Occupants in Side-facing Aircraft Seats," Masters Thesis, Wichita State University, May 2003. Current Employer: Gulfstream, Savannah, Georgia.
- Loh, Simon, "Comparison of Tubular Roof and Curtain Airbags for Side Impact Protection," Masters Thesis, Wichita State University, March 2003.
- Gottumukkala, Vijay R., "Study of Vehicle Aggressivity in Frontal Crash and Corresponding Occupant Injuries," Masters Thesis, Wichita State University, May 2003. Current Employer: B/E Aerospace, Tucson, Arizona.
- Vaddepati, Radhika, "Design Guidelines for HIC Compliant Aircraft Bulkheads," Masters Thesis, Wichita State University, May 2003. Current Employer: B/E Aerospace, Tucson, Arizona.
- Noor, Mohammad Shaik, "Crash Analysis of a Typical Pickup Truck under NCAP/IHHS Standards and Corresponding Occupant Responses," Masters Thesis, Wichita State University, October 2002. Current Employer: ESI Group/General Motors, Mumbai, India.
- Bhagavatula, Ramkamal, "Calibration and Validation of a Head Injury Criteria (HIC) Tester for Aluminum Sheet Panels," Masters Thesis, Wi

Nagarajarao, Manjunath S., "Analysis, Fabrication and Mode-I Calibration of the Component HIC Tester," Masters Thesis, Wichita State University, August 2001. Current Employer: Daimler/Chrysler, Detroit, Michigan.

Dhara, Somashekhar, "Development of a HIC Compliant Bulkhead," Masters Thesis, Wichita State University, August 2001. Current Employer: BE Aerospace (Manager), Miami, Florida.

Buchholz, Steve L., "The Freedom Earplug," Masters Project, Wichita State University, August 2001. Current Employer: Boeing Aircraft Co., Wichita, Kansas.

Jain, Prashant, "Design of Inflatable Seat Belts for Automotive Applications," Masters Thesis, Wichita State University, December 2001. Current Status: University of Pennsylvania Children's Hospital, Philadelphia, Pennsylvania.

Runghe, Atul P., "Analysis of Pedestrian Kinematics in a Vehicle Accident," Masters Thesis, Wichita State University, November 2001. Current Employer: Tata Technologies, Deputy Manager - India Engineering CAE, Pune, India.

Ramalingham, Visnu, "Analysis of Impact on Soft Soil and Its Application to Aircraft Crashworthiness," Masters Thesis, Wichita State University, May 2001, Current Employer: Ford Engineering Technology Services (Business Manager), India.

Aaron, Vinoj J., "Finite Element Analysis of Drop Test Equipment for Nose Landing Gear Configuration and Its Application to Aircraft Crashworthiness and Occupant Safety," Masters Thesis, Wichita State University, May 2001, (PhD, WSU 2005). Current Employer: Seagate Technologies, San Jose, California.

Randhawa, Hermanjit, "Finite Element Analysis of Impacts on Water and Its Application to Helicopter Water Landing and Occupant Safety," Masters Thesis, Wichita State University, May 2001. Current Employer: TNO Vehicle Safety Corp., Detroit, Michigan.

Chan, Keng F., "Performance Evaluation of Head Strike Test Rig and Head-Neck Impactor Using Biodynamic Modeling Software," Masters Thesis, Wichita State University, May 2001. Current Employer: Airbus, Wichita, Kansas.

Irde, Kiran, "Evaluation of Component HIC Testers Using Multibody and Finite Element Tools," Masters Thesis, Wichita State University, December 2000. Current Employer: ArmorWorks, Chandler, Arizona.

Pham, Hien L., "Design and Analysis of Aircraft Nose Gear Weight-On-Wheel Switch Actuator for Retrofitting," Masters Thesis, Wichita State University, August 2000. Current Employer: Bombardier/Learjet Aircraft Corporation, Wichita, Kansas.

Dumbala, Vijandhar, "Design Guidelines for Side-facing Aircraft Seats," Masters Thesis, Wichita State University, August 2000. Current Employer: TNO Vehicle Safety Corp., Detroit, Michigan.

Nagarajan, Harishankar, "Design of an Enhanced Component HIC Tester," Masters Thesis, Wichita State University, August 2000, (P

Engineering, Troy, Michigan.  
Mirza, Moinuddin G., "Parametric Study of Crashworthy Aircraft Bulkhead Designs," Masters

- Yanumula, Venkat S., "Validity of Door Beams in Side Impact Protection," Masters Thesis, Wichita State University, December 1996. Current Employer: Quantum Corp, Lansing, Michigan.
- Boyapalli, Pandu, "Prediction and Analysis of Failure of Aircraft Engine Components," Masters Project, Wichita State University, December 1996. Current Employer: Caterpillar, DeKalb, Illinois.
- Ng, Choon, "Design and Evaluation of Alternative Energy-absorbing Seat Legs," Masters Thesis, Wichita State University, February 1996. Current Employer: Nissan Corp, Detroit, Michigan.
- Meng, Haiwen, "Modeling the Impact Responses of the S-shaped Seat Legs," Masters Thesis, Wichita State University, April 1996. Current Employer: BF Goodrich, Phoenix, Arizona.
- Shakil, Ahmed, "Prediction of Frictional Impact Responses in Mechanical Systems," Masters Thesis, Wichita State University, April 1996. Current Employer: Boeing Corporation, Seattle, Washington.
- Swamy, Mahesh, "Analysis of the Occupant Responses in Aircraft Side-Facing Seats," Masters Thesis, Wichita State University, February 1996. Current Employer: Chrysler Corp., Detroit, Michigan.
- Tiwari, Dev W., "Head Impact Protection onto Aircraft Bulkhead," Masters Thesis, Wichita State University, January 1996. Current Employer: Ford Motor Co. (supervisor), Dearborn, Michigan.
- Palaniappan, Prebaker, "Design, Fabrication, and Operation of a Pendulum Head Impact Testing Apparatus," Masters Thesis, Wichita State University, August 1995. Current Employer: EASI Engineering, Southfield, Michigan.
- Qian, Xuping, "Optimization of Structures Using Multibody and Plastic Hinge Concepts," Masters Thesis, Wichita State University, June 1995. Current Employer: EASI Engineering, Southfield, Michigan.
- Sambatur, Kirankumar, "Evaluation of the Spine and Femur Injury," Masters Thesis, Wichita State University, December 1994. Current Employer: Easi/Meg Engineering, Southfield, Michigan.
- Santhanam, Sudharshan, "Transient Dynamic Response of Structures Under Impact with High Degree of Material and Geometric Nonlinearities," Masters Thesis, Wichita State University, August 1994. Current Employer: Delphi Corporation, Southgate, Michigan.
- Maruthyappan, Ramakrishnan, "Plastic Hinge Technique for Analysis of Structural Responses of Seats Under Impact," Masters Thesis, Wichita State University, August 1994. Current Employer: Chrysler Corp., Detroit, Michigan.
- Zhou, Xiaoping, "A Kineto-Static Analysis Methodology for Inclusion of Flexibility into the Rigid Multibody Dynamics," Masters Thesis, Wichita State University, August 1994. Current employer: B&D Industries, Valley Center, Kansas.
- Kumaran, Prinianan, "Scaling Laws for Development of Injury Criteria and Range of Occupant Sizes," Masters Thesis, Wichita State University, May 1994. Current employer: Pratt & Miller Engineering, Ann Arbor, Michigan.
- Malapati, Srinivas R., "Child Restraint Systems Design and Evaluation of Potential Head Injuries," Masters Thesis, Wichita State University, May 1994. Current Employer: Quantum Corporation, Lansing, Michigan.
- Darling, Charles, "Automation of Cylinder Filling Operations," Masters Project, Wichita State University, December 1993. Current employer: Vulcan Chemicals, Wichita, Kansas.
- Sanjeev, Aravinthan, P., "Design and Fabrication of Head Strike Test Rig for Dummy Crash Testing," Masters Thesis, Wichita State University, May 1994. Current employer:

Detroit Testing Laboratory, Warren, Michigan.  
Kompalli, Chandra, "An Integrated Child Seat for Aircraft - Design and Evaluation," Masters





University, May 1991. Current Position and Employer: Professor, University of Isfahan, Iran.

## RESEARCH GRANTS

- “AIRSEAT – a Design Tool for Aeronautical Seating Systems Certification by Analysis,” submitted to National Portuguese Foundation, 2015-2017, (Collaborator, PI: Dr. Martha Carvalho).
- “Micro Electro-Mechanical Systems Research Center,” funded by Portuguese Foundation for Science and Technology, 2014-2016, (serve as “Distinguished Collaborator” in the area of “Medical Applications” with Dr. Paulo Flores, PI: Dr. Higinio Correia).
- “Computer Simulation of All-Terrain Vehicle Injury Crashes,” Arkansas Children’s Hospital, 2012, (Co-PI with Dr. C. Thorbole, The Engineering Institute).
- “Development, Testing, and Evaluation of a Dual-function Test Fixture for Friction Stir Welded Vehicle Bumpers,” NSF Center for Friction Stir Welding Processes (CFSP), January 2010 – May 2013, (Co-PI with Dr. Michael McCoy and Dr. D. Burford).
- Nano-composite Coatings for the UV Protection of Composite Airframes,” ADMRC - Aircraft Design and Manufacturing Research Center, January 2010 - December 2010, (Co-PI with Dr. R. Asmatulu).
- “Dynamic Finite Element Analysis of Aircraft Seat Structures and Installations per AC 20-146,” Gulfstream Aircraft Co., August 2009 - December 2010, (Co-PI with Dr. G. Olivares).
- “In-Situ Methods of Spacecraft Repair and Construction Using a Portable Friction Stir Welder,” Kansas NASA EPSCoR, November 2007 - November 2010, (Co-PI with K. Soschinske - PI).
- “Performance Evaluation of Child Safety Seats in Lateral Sled Test at Varying Speeds,” National Science Foundation, Collaborative Research with The Children’s Hospital of Philadelphia (University of Pennsylvania), April 2007 - March 2008, (PI).
- “Bus Crash Protection: Operator, Passengers, and Children,” Federal Transit Authority FTA/DOT, July 2006 - June 2008 (Co-PI with G. Olivares).
- “Spacecraft Leak Repair Methods,” KUCR/NASA/EPSCoR, September 2006 - May 2007, (Co-PI with K. Soschinske - PI).
- “Component HIC Testing and Analysis on the Head Up Display Unit for the MD10 and A300 Aircraft,” ElectroOptics Industries, January - December 2006 (PI).
- “Spacecraft Leakage Repair Methods,” Kansas NASA EPSCoR, KNEP Research Team Augmentation Grant,” May 2006 - December 2006, (Co-PI with K. Soschinske - PI).
- “Crashworthiness of Composites Fuselage Structures - High Strain Rate Effects on Material Properties, Phase II” NIAR/Industry/State of Kansas (NIS Program), July 2005 - June 2006 (Co-PI with K.S. Raju).
- “DOE Study of the Rockwell Collins HUD Units,” Rockwell Collins, November 2005 - February 2006, (Co-PI with G. Olivares).
- “Child Safety Seat Provisions,” NIAR/Industry/State of Kansas (NIS Program), July 2005 - June 2007 (Co-PI with G. Olivares).
- “Bus Safety and Cabin Optimization for Improved Crashworthiness and Passenger Biomechanical Response,” Federal Transit Authority, DOT, July 2005 - June 2007 (Co-PI with G. Olivares).
- “Head Injury Criteria for the Head Up Display Combiner Unit of the MD10 and A300 Aircraft – Preliminary Analysis Phase,” ElectroOptics Industries and Fedex Corp., March- August 2005 (PI).
- “Dynamic Analysis of a Crew Seat and a Passenger Seat for Eclipse 500,” Millennium Concepts

- Inc., April - May 2005.
- “Crashworthiness of Composites Fuselage Structures – High Strain Rate Effects on Material Properties, Phase I,” NIAR/Industry/State of Kansas (NIS Program), July 2004 - June 2005 (Co-PI with K.S. Raju).
- “Spacecraft Leakage Repair Methods,” NASA EPSCoR, October 2004 - September 2006, (Co-PI with K. Soschinske - PI).
- “Crashworthiness of Composites - Material Dynamic Properties,” Federal Aviation Administration, October 2004 - September 2005 (Co-PI with K.S. Raju).
- “Validation of NIAR Component Head Injury Criteria Tester for FAR Part 23/25 Aircraft Seat Certification,” FAA AACE, Air Transportation Center of Excellence for Airworthiness Assurance, January 2003 -January 2005, (PI).
- “Prediction of the Global 5000 PAX Seat Bottom Cushion Lumbar Loads at Extreme Temperatures,” 4/Flight Industries, September - October 2003, (PI).
- “Injury Biomechanics of Children’s Skull, Brain and Cervical Spine,” National Institute of Child Health and Human Development -- NIH, October 2003 - September 2004, (PI).
- “Analysis of Head Injury Criteria for the C-27J Combiner Design,” Lockheed Martin, September - October 2003, (PI).
- “Development of Analytical Methods to Predict Crash Impact Responses of General Aviation Aircraft Seat/Occupant/Restraint System,” Federal Aviation Administration - Center of Excellence for General Aviation Research  
( PI).

Manufacturing Research Center, January 1999 - December 1999, (Co-PI, J. Mathis - PI).  
“Learjet/Bombardier Academic Excellence Fellowship,” Learjet-Bombardier, August 1998 -  
August 2001.  
“Three-point Restraint Systems for Aircraft Seat Testing,” Schroth Aircraft Belts Inc., total of 65  
restraint systems, May 1997, (PI).  
“Software MADYMO for Crash Simulation of Vehicle Occupants,” TNO North America, Inc.,  
since 1992, (PI).

“Impact Dynamics of Multibody Mechanical Systems - Application in Crashworthiness,” NATO/ASI (North Atlantic Treaty Organization/Advanced Science Institute on "Computer-Aided Analysis of Mechanical Systems," NATO Scientific and Environmental Affairs Travel Grant to Portugal, June 1993, (PI).

“Development of an Improved Biodynamics Model for SOM-LA/TA,” Federal Aviation Administration, October 1993 - September 1994, (PI).

“Injury Biomechanics of Human Head-Brain-Neck System,” Wesley Medical Foundation, Wichita, Kansas, January 1992 - September 1994, (PI).

“Occupant Biodynamic Responses for Evaluation of Aircraft Crash Safety,” Federal Aviation Administration, June 1991 - September 1993, (PI).

- “Aircraft Crashworthiness and Occupant Protection,” Keynote Lecture given to the Enhanced 7<sup>th</sup> International Madymo Users’ Conference, Windsor, Canada, June 1998
- “Crashworthiness and Biodynamics Research at NIAR,” Faculty Fellows Workshop, National Institute for Aviation Research, Annually since 1997
- “Aircraft Crashworthiness Research at NIAR,” KTEC Peer Review presentations, May 2001
- “From Basics of Impact to Applications in Crashworthiness,” University of Missouri, Columbia, October 1997
- “Contact/Impact Mechanics for Design Applications,” University of Maryland, Baltimore County, July 1996
- “Impact Dynamics Applied to Crashworthiness,” University of Illinois at Chicago, April 1996
- “Contact Mechanics and Biomechanics of Crash,” City College of New York, April 1996
- “Injury Biomechanics of Head, Spine, and other Extremities,” workshop given at the Technical University of Lisbon, Department of Mechanics, May 1994
- “Biodynamic Responses for Evaluation of Vehicle Crash Safety,” workshop given at the Technical University of Lisbon, Department of Mechanics, May 1994
- “Impact Dynamics of Multibody Systems Using Contact Forces,” workshop given at the Technical University of Lisbon, Department of Mechanics, May 1994
- “Investigations of Crash Safety Evaluation of Occupant, Seat Structure, and Restraint Systems by Analytical Means,” Short course given at Instituto Superior Tecnico, Portugal, July 1993

Curriculum and Laboratory Developments

- Developed a new undergraduate/graduate class on “Crash Injury Biomechanics” (ME709) with the enrollment of approximately 50 on average
- Developed a new undergraduate/graduate class on “Impact Dynamics” (ME750L) with the initial enrollment of 42
- Developed a new undergraduate/graduate course, ME 729, on Analysis and Design of Multibody Mechanical Systems
- Developed a new graduate course, ME829, on Advanced Computational Analysis and Design of Multibody Mechanical Systems
- As chair of Design/Controls/Manufacturing committee at WSU, the mechanical engineering design curriculum is continuously improved to reflect the latest technological advances as well as the new accreditation requirements by ABET
- The NIAR Computational Mechanics Laboratory (A

## PROFESSIONAL/SERVICE ACTIVITIES

### Committee Service

Mechanical Engineering Dept.- Design/Controls/Manufacturing Committee, Chair, 1990-present  
Mechanical Engineering Dept.- Curriculum Committee, Member, 1989-present  
Mechanical Engineering Dept.- Graduate Committee, Member, 1989-present  
Mechanical Engineering Dept.- Design Faculty Search Committee, Member, 1989-present  
Mechanical Engineering Dept.- Undergraduate Brochure Committee, Member, 1998-present  
College of Engineering - Strategic Planning Committee, Member, 2010-present  
College of Engineering - SPC Organization Team, Member, 2011-present  
College of Engineering - Composites Committee, Member, 2006-present  
College of Engineering - Curriculum Committee, Member, 1993-2003  
College of Engineering - Tenure and Promotion Committee, Member, 2001-present  
College of Engineering - Awards Committee, Member, 2000-present  
College of Engineering - Dean Search Committee, Member, 1999-2000  
Wichita State University - Graduate Council, 2002-2006  
Wichita State University - Doctoral Program Sub-council, Member, 1998-2002  
Wichita State University - Graduate Programs Assessment Committee, Member, 1995-2002  
Wichita State University - Faculty Grievance Committee, Member, 1997-present  
Wichita State University - Teaching and Learning Technology, Member, 1998-2005

### Student Recruitment and Support for Students

Participate in the Wallace Scholarship Competition as an interviewer  
Assist the Graduate Coordinator in recruiting many foreign graduate students  
Participate in activities such as College of Engineering Open house, Kansas Science Olympiad, and Technology Fair in an effort to recruit undergraduate students  
Provide support for graduate and undergraduate students from funded research projects  
Continuously coordinate the theses and dissertations of several graduate students  
Publish annually several technical papers jointly with students  
Regularly host several faculty members and graduate students visiting from Europe, joint research with the visiting faculty and supervision of theses and dissertations of the visiting students

### Scholarly Functions

SAE, organize technical sessions and review technical papers for various SAE meetings, 1990-present  
SAE Aircraft Seat Committee, contributing member since 1996 for the following working groups: Restraint System, Component HIC Tester, Side-facing Seat, Components, Definitions, and Methods  
ASME *Journal of Mechanical Design*, Associate Technical Editor, 1995-1997, 1998-2000, and 2001-2003  
ASME *Journal of Computational and Nonlinear Dynamics*, Associate Technical Editor, 2004-2006, 2007-2009, and 2010  
ASME *Journal of Medical Devices*, Associate Technical Editor, 2006-2008, 2009-2011, and 2012  
ASME Technical Committee on *Multibody Systems and Nonlinear Dynamics*, 2002-present

On the Editorial Boards for the *International Journal of Multibody Systems Dynamics*, *International Journal of Composite Materials*, *International Journal of Aerospace Engineering*, *Journal of Frontiers in Aerospace Engineering*, *International Research Publication House Journal of Mechanics and Structures*, *Advances in Mechanical Engineering Journal*, *International Journal of Crashworthiness*, *Journal of Engineering Research and Technology*, *Journal of Medical Instruments*, *Advances in Aerospace Engineering*, *Frontiers in Aerospace Science and Technology (FAST)*, *Engineering Science and Letters (ESL)*, *World of Mechanics (Zeal Scienza)*, *International Journal of Aeronautical Science & Aerospace Research (IJASAR)*

*International Journal of Multibody Systems Dynamics*, review technical papers, 1996-present  
*ASME Journal of Mechanical Design*, review technical papers, 1990-present  
*International Journal of Crashworthiness*, review technical papers, 1996-present  
*International Journal of Vibration and Control*, review papers, 1997-present  
*International Journal of Sound and Vibration*, review technical papers, 1997-present  
*International Journal of Robotic Systems*, review technical papers, 1998-present  
*International Journal of Nonlinear Dynamics*, review technical papers, 1992-present  
*International Journal of Finite Elements in Analysis and Design*, Review Technical Papers, 1999-present  
*ASME Computers in Mechanical Engineering*, review technical papers, 1991

ASME Design Automation conferences, organize technical sessions and review papers, 1990-present

ASME Mechanism Synthesis and Design conferences, organize technical sessions and review papers, 1990-present

SES, organize technical sessions and review papers, 1992

Nonlinear Dynamics conferences, organize technical sessions and review papers, 1992-present

NATO/ASI on Multibody Dynamics, technical program organization committee, 1995

Member of the SAE Committee on Head Impact Protection by Component Testing, 1994

Reviewer for the book, "Computational Methods in Multibody Dynamics," M.S. Pereira and J.A.C. Ambrosio editors, Kluwer Academic Publishers, 1994

Faculty Associate of the National Institute for Aviation Research, 1989-present

Session Chair in: ASME Computers in Mechanical Engineering conferences; ASME Design Automation conferences; ASME Mechanism Synthesis and Design conferences; Nonlinear Dynamics conferences; SES Meetings; 1994 NATO/ASI on Multibody Dynamics; European Colloquium on Multibody Dynamics, 1994; 1996 NATO/ASI on Crashworthiness, 1998 International Symposium on Impact and Friction, 1999 International Conference on Dynamics and Control, Multibody Dynamics and Vibration Symposium of the ASME Design Technical conferences, Euromech 404, 5<sup>th</sup> US Congress on Computational Mechanics, NATO Advanced Science Institute (ASI) on Virtual Nonlinear Multibody Systems

Member of panels discussing issues in Multibody Dynamics -- 1993 NATO/ASI and European Mechanics Colloquium, 1994

NATO/ASI on Crashworthiness, Planning and Organizing Committee, NSF-appointed US Representative

International Symposium of Impact and Friction of Solids, Structures and Machines, member of Organizing Committee, 1998 and 2000

Int. Conference on Dynamics and Control, member of Organizing Committee, 1998-1999

Mechanical Engineering Department Graduate Seminar Organizer, 1992- present

Organizer, Multibody Dynamics Symposium, 6<sup>th</sup> US National Congress on Computational Mechanics, Dearborn, Michigan, 2001

Member of Organizing Committee, 3<sup>rd</sup> Int. Conference on Aircraft Cabin Safety, Atlantic City, New Jersey, 2001

Member of the Organizing Committee for NATO Advanced Science Institute (ASI) on Virtual Nonlinear Multibody Systems, Prague, Czech Republic, 2002

Organizer, "Biomechanics" Symposium, ASME Design Technical Conferences, Long Beach, California, 2005

Member of the Steering Committee of Scit6d