

*Curriculum Vitae*  
**Ranjan Mukherjee**

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Michigan State University  
Department of Mechanical Engineering  
428 S. Shaw Lane, Room 2430  
East Lansing, MI 48824-1226, USA

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**Education:**

PhD	12/1991	Mechanical Engineering	University of California, Santa Barbara, CA
MS	12/1989	Mechanical Engineering	University of California, Santa Barbara, CA
BTech	05/1987	Mechanical Engineering	Indian Institute of Technology, Kharagpur, India

**Academic Positions:**

Professor	07/2006	– present	Department of Mechanical Engineering Michigan State University, MI
Associate Professor (tenured)	07/1999	– 06/2006	Department of Mechanical Engineering Michigan State University, MI
Associate Professor	08/1996	– 06/1999	Department of Mechanical Engineering Naval Postgraduate School, Monterey, CA
Assistant Professor	08/1991	– 07/1996	

**Other Positions:**

Editor-in-Chief	08/2019	– present	ASME Journal Dynamic Systems, Measurement & Control
Associate Chair for Graduate Studies	08/2014	– 08/2017	Department of Mechanical Engineering Michigan State University, MI
Professor (joint appointment)	03/2010	– present	Department of Electrical Engineering Michigan State University, MI
Chair	07/2016	– 06/2017	ASME
Executive Committee	07/2013	– 06/2018	Dynamic Systems and Control Division
Fulbright Research Scholar	01/2009	– 05/2009	Department of Mechano-Informatics University of Tokyo, Japan
Visiting Faculty/Sabbatical	08/2001	– 12/2001	Intuitive Surgical, Inc., Goleta, CA, and Department of Mechanical Engineering University of California, Santa Barbara, CA

**Awards and Honors:**

Charles Stark Draper Innovative Practice Award	ASME Dynamic Systems and Control Division	2014
Withrow Distinguished Scholar, Senior Award	College of Engineering Michigan State University	2011
Fellow	ASME	2008
Fulbright Research Scholarship	US Department of State	2008
Withrow Teaching Excellence Award	College of Engineering Michigan State University	2007
Faculty/Staff Community Service-Learning Award	Michigan Campus Compact	2006

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## Awards and Honors: – continued from previous page

Faculty Performance Award for Outstanding Research	Naval Postgraduate School	1996
Research Initiation Award	National Science Foundation	1994
Best Presentation Award	AIAA Guidance, Control and Navigation Conference, Monterey, CA	1993
Graduate Dissertation Fellowship	University of California, Santa Barbara	1991

## Teaching Experience:

Michigan State University:	Dynamics	Junior Level	ME361
	Mechanical Engineering Analysis	Junior Level	ME391
	Control Systems	Senior Level	ME451
	Vibrations	Senior Level	ME461
	Advanced Dynamics	Graduate Level	ME861
	Linear Systems and Control	Graduate Level	ME851
	Nonlinear Systems and Control	Graduate Level	ME859
Naval Postgraduate School:	Statics	Junior Level	
	Engineering System Dynamics	Junior Level	
	Dynamics	Senior Level	
	Linear Automatic Controls	Senior Level	
	Measurements and Instrumentation Lab	Senior Level	
	Modern Control Systems	Graduate Level	
Advanced Dynamics	Graduate Level		

## Research Areas and Interests: Robotics, Mechatronics, and Control Applications

Design and control problems in robotics; Impulsive actuation and control of underactuated dynamical systems; Dynamics and control of underwater vehicles; Problems involving flutter instability; Control of flexible structures; Soft robotics; Switched and hybrid dynamical systems; Robotics for healthcare; Body-machine interfaces.

## Research Contracts, Grants and Gifts:

Title: Analysis of a Holding System for a Polysilicon Manufacturing Process

Sponsor: Hemlock Semiconductors

Amount: \$24,927; Period: 08/15/21 - 12/31/21

PI: Andre Benard; Co-I: Ranjan Mukherjee

Title: Uber Wheelchair - An Autonomous Wheelchair with On-Demand and Self-Driving Services for the Mobility Challenged

Sponsor: Michigan State University Advance Grant

Amount: \$40,000; Period: 01/01/21 - 12/31/21

PI: Tamara Reid-Bush; Co-I: Subir Biswas, Xiaoming Liu and Ranjan Mukherjee

Title: Orbital Stabilization of Underactuated Systems using Impulsive Inputs

Sponsor: National Science Foundation (NSF/CMMI)

Amount: \$344,007; Period: 01/01/21 - 12/31/23

PI: Ranjan Mukherjee

Title: Analysis of Large-Amplitude Short Duration Control Forces for Guiding Underactuated Mechanical Systems into Safe Operating Regions - Supplemental Funding

Sponsor: National Science Foundation (NSF/CMMI)

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**Research Contracts, Grants and Gifts:** – *continued from previous page*

Amount: \$50,533; Period: 01/01/20 - 08/15/20

PI: Ranjan Mukherjee

Title: Development and Validation of a Robotic System for Sacroiliac Luxation/Fracture Reduction and Fixation

Sponsor: AO Foundation

Amount: \$798,500; Period: 10/01/19 - 09/30/22

PI: Loic Dejaradin; Co-Is: Ranjan Mukherjee and Karen Perry

Title: Performance Optimization of an Underwater Vehicle Propelled by a Fluttering Tail

Sponsor: Office of Naval Research (ONR/ULI)

Amount: \$225,000; Period: 08/15/19 - 08/14/22

PI: Ranjan Mukherjee

Purpose: Internship for Student supported by NSF Grant

Sponsor: National Science Foundation (NSF/IIP)

Amount: \$26,438; Period: 06/01/19 - 05/31/20

PI: Ranjan Mukherjee

Title: Instrumented Test Facility for Underwater Robotics

Sponsor: Office of Naval Research (ONR/DURIP)

Amount: \$93,445; Period: 06/15/18 - 09/14/2019

PI: Ranjan Mukherjee

Title: A High DOF Body-Machine Interface for Children with Severe Motor Impairments

Sponsor: National Science Foundation (NSF/CBET)

Amount: \$379,925; Period: 09/01/17 - 08/31/20

PI: Ranjan Mukherjee; Co-I: Rajiv Ranganathan, Mei-Hua Lee, Florian Kagerer

Purpose: Research in the Area of Dynamics and Control

Gift: Ernest and Katherine Sterling Charitable Fund/Capital Region Community Foundation

Amount: \$10,000; Period: Unrestricted

PI: Ranjan Mukherjee

Title: A New Paradigm for Generating Surface-Normal Forces for Hull-Cleaning Robots

Sponsor: Office of Naval Research (ONR/ULI)

Amount: \$225,000; Period: 06/01/16 - 05/31/19

PI: Ranjan Mukherjee

Title: Analysis of Large-Amplitude Short Duration Control Forces for Guiding Underactuated Mechanical Systems into Safe Operating Regions

Sponsor: National Science Foundation (NSF/CMMI)

Amount: \$260,000; Period: 06/01/15 - 05/31/18

PI: Ranjan Mukherjee; Co-I: Hassan Khalil

Title: Body-Machine Interfaces for Children with Severe Motor Impairments

Sponsor: Michigan State University (MSU/VPRGS)

Amount: \$85,000; Period: 01/01/15 - 12/31/15

PI: Ranjan Mukherjee; Co-I: Rajiv Ranganathan, Mei-Hua Lee, Florian Kagerer

Title: Synergistically Propelled Ichthyoid - Dynamics Investigation for Improved Performance

Sponsor: National Science Foundation (NSF/CMMI)

Amount: \$269,995; Period: 09/01/11 - 08/31/15

Supplemental Funding for Research Experience for Undergraduates (REU): \$6,459

PI: Ranjan Mukherjee

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**Research Contracts, Grants and Gifts:** – *continued from previous page*

Title: Vibration Suppression Strategies for Large Tension-Aligned Array Structures

Sponsor: Air Force Office of Scientific Research (AFOSR)

Amount: \$364,751; Period: 09/01/10 - 08/31/13

PI: Ranjan Mukherjee; Co-I: Alejandro R. Diaz

Title: Impulsive Control of Under-Actuated Dynamical Systems

Sponsor: National Science Foundation (NSF/CMMI)

Amount: \$247,000; Period: 09/01/09 - 08/31/13

PI: Ranjan Mukherjee

Title: High-Fidelity Haptic Interface for Teleoperation

Sponsor: US Army Ground Robotics Research Center (GRRC)/University of Michigan

Amount: \$150,000; Period: 07/01/08 - 06/30/10

PI: Ranjan Mukherjee

Title: Assistive Device using Biomechanics and Robotics to Reduce Falls among Older Adults

Sponsor: Pearl J. Aldrich Faculty Research Award/Michigan State University

Amount: \$30,000; Period: 07/01/08 - 06/30/09

PI: Tamara Reid-Bush; Co-Is: Clare Luz, Ranjan Mukherjee and Jack Rubinstein

Title: A Biomimetic Propulsion Mechanism for Underwater Vehicles Exploiting Flutter Instability

Sponsor: Office of Naval Research (ONR/ULI)

Amount: \$239,063; Period: 01/01/08 - 06/31/11

PI: Ranjan Mukherjee

Title: Planning and Control of Networked and Coordinated Heterogeneous Multi-Agent Systems

Sponsor: Army Research Office (ARO)

Amount: \$300,000; Period: 09/21/07 - 09/20/08

PI: Ning Xi; Co-I's: Ranjan Mukherjee and Matt Mutka

Title: A Hybrid Actuation Approach for Vibration Control of Flexible Space Structures

Sponsor: Air Force Office of Scientific Research (AFOSR)

Amount: \$150,981; Period: 01/15/07 - 11/30/09

PI: Ranjan Mukherjee

Title: Planning for Clinical Translational Science Award

Sponsor: National Institutes of Health (NIH/PHS)

Amount: \$226,500; Period: 09/30/06 - 09/29/07

PI: Barbara Conley; Co-I's: Margaret Aguwa, John Baker, Thomas Coon, Barbara Given, Justin McCormick, Ranjan Mukherjee, Nigel Paneth, Lori Post, Ronald Rosenberg, Thomas Tomlinson, Vilma Yuzbasiyan-Gurkan

Title: Planning a Trip to the University of Tokyo for Collaboration on Humanoid Robotics

Sponsor: National Science Foundation (NSF/OISE)

Amount: \$19,800; Period: 02/01/06 - 01/31/08

PI: Ranjan Mukherjee

Title: Enhancing Controllability and Observability in Under-Actuated and Under-Sensed Systems Through Switching: Application to Vibration Control

Sponsor: National Science Foundation (NSF/CMS)

Amount: \$197,008; Period: 08/01/04 - 07/31/07

PI: Ranjan Mukherjee

Title: Improved Control Authority in Flexible Structures Using Stiffness Variation

Sponsor: Air Force Office of Scientific Research (AFOSR)

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**Research Contracts, Grants and Gifts:** – *continued from previous page*

Amount: \$271,217; Period: 01/01/04 - 06/30/07

PI: Ranjan Mukherjee; Co-I: Steven W. Shaw

Title: Haptic Interface - Telediagnosics of Breast Pathology

Sponsor: National Institutes of Health (NIH/NIBIB)

Amount: \$436,125; Period: 09/01/03 - 08/31/05

PI: Ranjan Mukherjee; Co-I's: Ning Xi and Matt Mutka

Title: Improved Structural Control Authority Using Stiffness Variation

Sponsor: Air Force Office of Scientific Research (AFOSR)

Amount: \$47,811; Period: 04/01/03 - 12/31/03

PI: Ranjan Mukherjee; Co-I: Steven W. Shaw

Title: A New Concept in Minimally Invasive Surgical Training and Education using Robotics and Tele-Collaboration

Sponsor: National Institute of Standards and Technology (NIST/ATP)

Amount: \$2,000,000; Period: 10/01/01 - 09/30/04

PI: Yulun Wang (Computer Motion/Intuitive Surgical); Co-I's: Ranjan Mukherjee, Steven Butner (UCSB) and Peter Schulam (UCLA)

Title: Design of a Path Planning Algorithm for Aerobot Formation Flying

Sponsor: Jet Propulsion Laboratory (NASA/JPL)

Amount: \$24,964; Period: 04/01/00 - 12/31/00

PI: Ranjan Mukherjee

Title: Dynamics & Control of a Self-Reconfiguring Sphere for Design of a Spherical Mobile Robot

Sponsor: National Science Foundation (NSF/CMS)

Amount: \$184,625; Period: 05/15/98 - 04/31/03

PI: Ranjan Mukherjee

Title: Design and Development of Underwater Biomimetic Robotic System

Sponsor: Michigan State University (MSU/IRGP)

Amount: \$74,100; Period: 10/01/99 - 09/30/02

PI: Ranjan Mukherjee; Co-I's: Andre Benard and Alejandro R. Diaz

Title: Reconfigurable Adaptable Micro-Robots

Sponsor: Defense Advanced Research Projects Agency (DARPA/ETO)

Amount: \$1,704,355; Period: 06/01/98 - 09/30/02

PI: R. L. Tummala; Co-I's: Ranjan Mukherjee, Ning Xi, Dean Aslam, S. Mahadevan and J. Weng

Title: Development of Shape Memory Alloy Actuators for Biomimetic Ambulatory and Undulatory Underwater Robotic Systems

Sponsor: Defense Advanced Research Projects Agency (DARPA) Prime/Northeastern University

Amount: \$53,972; Period: 04/01/98 - 04/30/99

PI: Ranjan Mukherjee

Title: Investigation of Self-Sensing in Active Magnetic Bearings

Sponsor: Naval Sea Systems Command (Navy/NAVSEA)

Amount: \$20,000; Period: 07/01/97 - 03/31/98

PI: Ranjan Mukherjee

Title: Development of an Articulated Surgical Robotic System for Minimally Invasive Surgery

Sponsor: Michigan State University (MSU/AURIG)

Amount: \$15,000; Period: 10/01/96 - 09/30/97

PI: Ranjan Mukherjee

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## Research Contracts, Grants and Gifts: – *continued from previous page*

Title: Repeatability in Nonholonomic Mechanical Systems

Sponsor: National Science Foundation (NSF/CMS)

Amount: \$68,211; Period: 09/01/94 - 08/31/98

PI: Ranjan Mukherjee

Title: Development of a Flexible Surgical Robotic Arm

Sponsor: Defense Advanced Research Projects Agency (DARPA/DSO)

Amount: \$203,396; Period: 04/01/94 - 08/31/98

PI: Ranjan Mukherjee

Title: A First Step Towards the Development of a Flexible Surgical Robotic Arm

Sponsor: Defense Advanced Research Projects Agency (DARPA/DSO)

Amount: \$29,285; Period: 09/01/93 - 04/30/94

PI: Ranjan Mukherjee

## Invited Seminars:

01. “Embracing and Escaping Instabilities: Exploring New Capabilities In Robotic Systems,”  
Department of Mechanical Engineering, University of Houston, Houston, TX, 04/2021
02. “Embracing and Escaping Instabilities: Exploring New Capabilities In Robotic Systems,”  
NASA Jet Propulsion Laboratory, Pasadena, CA, 07/2019
03. “Fluttering Fish-Like Propulsion,”  
Basic Research Forum, Office of Naval Research, Washington DC, 07/2019
04. “Embracing and Escaping Instabilities: Exploring New Capabilities In Robotic Systems,”  
College of Engineering, University of North Carolina at Charlotte, Charlotte, NC, 09/2018
05. “Impulsive Control of Under-Actuated Mechanical Systems,”  
Department of Mechanical Engineering, Indian Institute of Technology, Chennai, India, 03/2018
06. “Control of Under-Actuated Mechanical Systems,”  
Keynote, IFToMM Conference on Machines and Mechanisms, Indian Institute of Technology,  
Roorkee, India, 12/2013
07. “Control of Under-Actuated Robotic Systems: Rolling Sphere to Synthetic Wheel Biped,”  
Woodruff School of Mechanical Engineering, Georgia Tech, Atlanta, GA, 12/2012
08. “Biology Inspired Robotics,”  
Department of Mechanical Engineering, University of Central Florida, Orlando, FL, 02/2012
09. ‘Control of Under-Actuated Systems: Rolling Sphere to Synthetic Wheel Biped,’  
Department of Aerospace Engineering, University of Texas at Austin, Austin, TX, 11/2010
10. “Control of Under-Actuated Systems: Rolling Sphere to Synthetic Wheel Biped,”  
Department of Aerospace Engineering, Texas A&M University, College Station, TX, 11/2010
11. “Rolling Sphere to Synthetic Wheel Biped,” Division of Mechanical Engineering, Tohoku  
University, Tohoku, Japan, 04/2009
12. “An Impulse-Momentum Approach to Swing-Up Control of the Pendubot and Acrobot,”  
Department of Mechano-Informatics, University of Tokyo, Tokyo, Japan, 02/2009
13. “Mechatronics Research in the Dynamics and Controls Laboratory of Michigan State University,”  
Department of Mechano-Informatics, University of Tokyo, Tokyo, Japan, 06/2007
14. “Mechatronics Research in the Dynamics and Controls Laboratory of Michigan State University,”  
Advanced Institute of Science and Technology (AIST), Ibaraki, Japan, 06/2007

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**Invited Seminars:** – *continued from previous page*

15. “Synergism in Robot Design,” Department of Mechanical Engineering, University of Maryland at College Park, College Park, MD, 03/2006
16. “Hybrid Control of Flexible Structures,” Center for Intelligent Materials, Systems and Structures, Virginia Tech, Blacksburg, VA, 11/2005
17. “A Haptic Interface Design for Minimally Invasive Tele-Surgical Training and Collaboration,” Wayne State University, Detroit, MI, 04/2005
18. “Hybrid Control of Flexible Structures,” Controls Workshop, Helsinki University of Technology, Helsinki, Finland, 03/2005
19. “Vibration Control of Flexible Structures Using Piezo Transducers Switched Between Actuator and Sensor Modes,” Joint US-India NSF Workshop on Advanced Sensing Systems and Smart Structures Technologies, Indian Institute of Technology, Bombay, India, 12/2004
20. “Exponential Stabilization of the Rolling Sphere: A Defective Nonholonomic System,” Robotics and Controls Colloquium, University of Washington, Seattle, WA, 10/2003
21. “Exponential Stabilization of the Rolling Sphere: An Intractable Nonholonomic System,” Control Seminar Series, University of Michigan, Ann Arbor, MI, 10/2002
22. “Adaptive Compensation of Sensor Runout and Mass Unbalance in Active Magnetic Bearings,” NASA Jet Propulsion Laboratory, Pasadena, CA, 11/2001
23. “Adaptive Compensation of Sensor Runout and Mass Unbalance in Active Magnetic Bearings,” Department of Mechanical Engineering, University of California, Santa Barbara, CA, 10/2001
24. “Robotics in Minimally Invasive Surgery,” Medical Robots, Metrology, and Standards Workshop, National Institute of Standards and Technology, Gaithersburg, MD, 09/2001
25. “Adaptive Compensation of Sensor Runout and Mass Unbalance in Active Magnetic Bearings,” NASA Glenn Research Center, Cleveland, OH, 07/2001
26. “Optimal Control of Hot-Air Balloons in Linear Wind Fields,” NASA Jet Propulsion Laboratory, Pasadena, CA, 06/2001
27. “Feedback Stabilization and Motion Planning of Intractable Nonholonomic Systems: Space Robot and Spherobot,” NASA Jet Propulsion Laboratory, Pasadena, CA, 05/1999
28. “Design, Modeling and Control of Spherobot: A Spherical Mobile Robot,” Fanuc Robotics, Staff Engineering Forum, Rochester Hills, MI, 04/1999
29. “Feedback Control Strategies for a Nonholonomic Mobile Robot using a Nonlinear Oscillator,” Department of Mechanical Engineering, University of Michigan, Ann Arbor, MI, 10/1997
30. “Feedback Stabilization and Optimal Trajectory Planning for a Nonholonomic Mobile Robot,” Stanford University, Palo Alto, CA, 01/1996
31. “Repeatability in Nonholonomic Mechanical Systems,” NASA Jet Propulsion Laboratory, Pasadena, CA, 04/1995

**Graduate Student Supervision:** Postdoctoral Students

— At Michigan State University:

01. Dr. Mahmoud Abdullatif (current)  
Postdoctoral Researcher, Department of Mechanical Engineering  
Michigan State University, East Lansing, MI
02. Dr. Tuhin Das  
Associate Professor, Department of Mechanical Engineering  
University of Central Florida, Orlando, FL

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**Graduate Student Supervision: Postdoctoral Students** – *continued from previous page*

03. Dr. Aren Hellum  
Engineer - Vehicle Dynamics and Signature Control  
Naval Undersea Warfare Center (NUWC), Newport, RI  
— At Naval Postgraduate School:
04. Dr. Gangbing Song  
Professor, Department of Mechanical Engineering  
University of Houston, Houston, TX

**Graduate Student Supervision: PhD Students**

— At Michigan State University:

01. Dr. Mark A. Minor, May, 2000  
Associate Professor, Department of Mechanical Engineering  
University of Utah, Salt Lake City, UT  
Dissertation: “Design and Control of Constrained Robotic Systems for Enhanced Dexterity and Superior Mobility”
02. Dr. Joga D. Setiawan, May, 2001  
Faculty, Department of Mechanical Engineering, Diponegoro University, Semarang, Indonesia  
Dissertation: “Adaptive Compensation of Synchronous Sensor Runout and Mass Unbalance in Active Magnetic Bearings”
03. Dr. Tuhin Das, August, 2002  
Associate Professor, Department of Mechanical Engineering  
University of Central Florida, Orlando, FL  
Dissertation: “Exponential Stabilization of the Rolling Sphere”
04. Dr. Shahin Nudehi, August, 2005  
Associate Professor, Department of Mechanical Engineering  
Valparaiso University, Valparaiso, IN  
Dissertation: “Hybrid Control of Flexible Structures”
05. Dr. Jimmy Issa, June, 2008  
Associate Professor, Department of Industrial and Mechanical Engineering  
Lebanese American University, ByBlos, Lebanon  
Dissertation: “Vibration Suppression Through Stiffness Variation and Modal Disparity”
06. Dr. Nandagopal Methil-Sudhakaran, August, 2009  
Engineer, Caterpillar, Inc., Peoria, IL  
Dissertation: “Adaptive Control Subject to Input Constraints: Maneuvering Wheeled Platforms Using a Holonomic Mobile Robot”
07. Dr. Thamer Al-Bahkali, August, 2009  
Assistant Professor, Department of Mechanical Engineering, King Saud University, Saudi Arabia  
Dissertation: “An Impulse-Momentum Approach to Control of Under-Actuated Systems”
08. Dr. Aren Hellum, August, 2011  
Engineer - Vehicle Dynamics and Signature Control  
Naval Undersea Warfare Center (NUWC), Newport, RI  
Dissertation: “Modeling and Simulation of a Fluttering Bio-Inspired Submersible”
09. Dr. Assaad Alsahlani, June, 2012  
Faculty, Department of Automobile Engineering  
Technical Engineering College, Najaf, Iraq  
Dissertation: “Vibration Control of Continuous Systems Using Boundary Constraints”

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## Graduate Student Supervision: PhD Students – *continued from previous page*

10. Dr. Sayyed R. Jafari Tafti, December, 2012  
Engineer - General Motors, Warren, MI  
Dissertation: “Impulsive Control of Under-Actuated Dynamical Systems”
11. Dr. Tingli Cai, May, 2016  
Acoustic Systems Engineer - Harman International, Novi, MI  
Dissertation: “Vibration Suppression in Simple Tension-Aligned Structures”
12. Dr. Frank Mathis, December, 2016  
Engineer, GeoControl Systems, Inc, Houston, TX  
Dissertation: “Control of Hybrid Dynamics with Application to Hopping Robots”
13. Mr. Amer Allafi, April 2020  
Assistant Professor, Department of Mechanical Engineering  
Qassim University, Saudi Arabia  
Dissertation: “Control of Multi-Link One-Legged Hopping Locomotion”
14. Ms. Kristina Kamensky, July 2020  
Engineer, Naval Undersea Warfare Center (NUWC), Newport, RI  
Research Area: A New Paradigm for Generating Surface-Normal Forces in Hull-Cleaning Robots
15. Mr. Mahmoud Abdullatif, July 2020  
Postdoctoral Researcher - Michigan State University  
Dissertation: “Stability Investigations of Non-Conservative Dynamic Systems”
16. Mr. Nilay Kant, July 2020  
Senior Controls Engineer, Mainspring Energy  
Dissertation: “Exploiting Impulsive Inputs for Stabilization of Underactuated Robotic Systems: Theory and Experiments”
17. Mr. Sheryl Chau, December 2020  
Senior Engineer, Manipulation and Control, UBTECH Robotics  
Dissertation: Dynamics and Controls of Systems Involving the Elastica
18. Mr. Sanders Aspelund, (current)  
Research Area: Underwater Propulsion using Flexible Propulsors
19. Mr. Anshul Singh Tomar, (current)  
Research Area: Computational and Experimental Investigations of Radial Outflow
20. Mr. Aakash Khandelwal, (current)  
Research Area: Orbital Stabilization of Underactuated Systems using Impulsive Inputs

## Graduate Student Supervision: MS Students

— At Michigan State University:

01. Dr. Jay T. Pukrushpan, August, 1998  
Faculty, Department of Mechanical Engineering, Kasetsart University, Bangkok, Thailand  
Thesis: “Nonholonomic Systems with Rolling Constraints”
02. Dr. Tuhin Das, August, 2000  
Associate Professor, Department of Mechanical Engineering  
University of Central Florida, Orlando, FL  
Thesis: “Dynamics of Self-Propulsion with Rolling Constraints”
03. Mr. Fil Tomik, May, 2003  
Engineer - Ford, Livonia, MI  
Thesis: “Design Challenges in the Development of a Spherical Mobile Robot”

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**Graduate Student Supervision:** MS Students – *continued from previous page*

04. Dr. Abhyudai Singh, December, 2006  
Associate Professor, Department of Electrical and Computer Engineering  
University of Delaware, Newark, DE  
Thesis: “A Mechanistic Approach to Tuning of MEMS Resonators”
05. Mr. Sridharan Narayanan, May, 2008  
Engineer - Caterpillar, Inc., Peoria, IL  
Thesis: “Transient Response Characterization of Solid Oxide Fuel Cells”
06. Mr. Louis L. Flynn, December, 2009  
Researcher, Vrije University, Brussel, Belgium  
Thesis: “Design and Development of a Synthetic Wheel Biped”
07. Mr. Paul Strefling, May, 2011  
Engineer - Boeing, Seattle, Washington  
Thesis: “Experimental Platform for Studying the Behavior and Performance of a Submersible Propelled by a Fluid-Conveying Fluttering Tail”
08. Mr. Frank B. Mathis, May, 2011  
Engineer, GeoControl Systems, Inc, Houston, TX  
Thesis: “A Hybrid System Approach to Impedance and Admittance Control”
09. Mr. Kyle Crane, May, 2014  
Engineer - Eaton Corporation, Southfield, MI  
Thesis: “Dynamics and Control of a Bipedal Walking Machine”
10. Mr. Amer Allafi, December 2014  
Graduate Student, Michigan State University, East Lansing, MI  
Thesis: “Improving the Performance of an Underdamped Mass-Spring-Damper System Through Switched Parameters”
11. Mr. Mahmoud Nabil Abdullatif, August, 2015  
Graduate Student, Michigan State University, East Lansing, MI  
Thesis: “Vibration Control of a Plate Using In-Plane Forces”
12. Mr. Sanders Asperlund, May, 2017  
Graduate Student, Michigan State University, East Lansing, MI  
Thesis: “Developing a Multi-Degree-of-Freedom Body-Machine Interface for Control of Assistive Devices”  
— At Naval Postgraduate School:
13. Mr. David P. Anderson, December, 1992  
Thesis: “A Surface Integral Approach for Motion Planning of Nonholonomic Systems”
14. Mr. Pernell Jordan, September, 1993  
Thesis: “Feedback Control of a Three-Link Planar Under-Actuated Manipulator using a Surge Velocity”
15. Ms. Mary Zurowski, December, 1993  
Thesis: “Trajectory Planning for Space Manipulators”
16. Mr. Douglas L. Maddox, December, 1993  
Thesis: “An Experimental Test-Bed for a Free-Floating Space Manipulator”
17. Mr. Andrew R. Leech, June 1994  
Thesis: “The Study of the Deformation in Helical Springs under Eccentric Loading”
18. Mr. Richard A. Thiel, June, 1994  
Thesis: “An Actuation System for the Control of Multiple Shape Memory Alloy Actuators”

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## Graduate Student Supervision: MS Students – *continued from previous page*

19. Mr. Bryon R. Emond, September, 1994  
Thesis: “Optimal Control of a Two-Wheeled Mobile Robot”
20. Mr. William T. Parkhurst, December, 1994  
Thesis: “Design of a Superelastic Alloy Actuator for a Minimally Invasive Surgical Manipulator”
21. Ms. Cynthia D. Conway, December, 1996  
Thesis: “Analysis of the Tip Displacement of a Bourdon Tube”
22. Mr. Jerry D. Ray, September, 1996  
Thesis: “Design of an Articulated Instrument for Minimally Invasive Surgery”

## Visiting Researchers Hosted:

- Dr. Kei Senda                    08/1996 – 07/1997    Professor, Department of Aerospace Engineering  
Osaka Prefecture University, Osaka, Japan
- Mr. Masayuki Kamon    01/1996 – 12/1996    MS Student  
Keio University, Tokyo, Japan

## Journal Publications:

- J01 | Nakamura, Y. and Mukherjee, R. (1991). Nonholonomic path planning of space robots via a bidirectional approach. *IEEE Transactions on Robotics and Automation*, 7(4):500–514
- J02 | Mukherjee, R. and Nakamura, Y. (1992). Formulation and efficient computation of inverse dynamics of space robots. *IEEE Transactions on Robotics and Automation*, 8(3):400–406
- J03 | Mukherjee, R. and Chen, D. (1993). Asymptotic stability theorem for autonomous systems. *AIAA Journal of Guidance, Control, and Dynamics*, 16(5):961–963
- J04 | Mukherjee, R. and Chen, D. (1993). Control of free-flying underactuated space manipulators to equilibrium manifolds. *IEEE Transactions on Robotics and Automation*, 9(5):561–570
- J05 | Mukherjee, R. and Junkins, J. L. (1993). Invariant set analysis of the hub-appendage problem. *AIAA Journal of Guidance, Control, and Dynamics*, 16(6):1191–1193
- J06 | Nakamura, Y. and Mukherjee, R. (1993). Exploiting nonholonomic redundancy of free-flying space robots. *IEEE Transactions on Robotics and Automation*, 9(4):499–506
- J07 | Mukherjee, R. and Anderson, D. P. (1994). A surface integral approach to the motion planning of nonholonomic systems. *ASME Journal of Dynamic Systems, Measurement, and Control*, 116(3):315–325
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- C047 Methil-Sudhakaran, N., Shen, Y., Mukherjee, R., and Xi, N. (2005). Development of a medical teleradiologic system with tactile haptic interfaces. In *IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, volume 1, pages 158–163, Monterey, CA
- C048 Diaz, A. R. and Mukherjee, R. (2005). A strategy for control of flexible structures based on pre-stress induced stiffness variations and topology optimization. In *6th World Congress on Structural and Multidisciplinary Optimization*, Rio de Janeiro, Brazil
- C049 Diaz, A. R. and Mukherjee, R. (2005). A topology optimization problem in control of structures using modal disparity. In *ASME International Design Engineering Technical Conference*, volume 2, pages 881–887, Long Beach, CA

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- C050 Methil, N. S. and Mukherjee, R. (2006). Pushing and steering wheelchairs using a holonomic mobile robot with a single arm. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 5781–5785, Beijing, China
- C051 Shen, Y., Pomeroy, C. A., Xi, N., Methil-Sudhakaran, N., Mukherjee, R., Zhu, D., Mutka, M. W., Slomski, C. A., and Apelgren, K. N. (2006). Supermedia interface for internet based tele-diagnostics of breast pathology. In *The First IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, pages 787–792, Pisa, Italy
- C052 Methil, N. S., Shen, Y., Zhu, D., Pomeroy, C. A., Mukherjee, R., Xi, N., and Mutka, M. (2006). Development of supermedia interface for teleradiology of breast pathology. In *IEEE International Conference on Robotics and Automation*, pages 3911–3916, Orlando, FL
- C053 Das, T. and Mukherjee, R. (2006). An extension of the minimum principle with application to switched linear systems. In *American Control Conference*, pages 2424–2426, Minneapolis, MN
- C054 Diaz, A. R. and Mukherjee, R. (2006). Optimal joint placement and modal disparity in control of flexible structures. In *3rd European Conference on Computational Mechanics: Solids, Structures, and Coupled Problems in Engineering*, Lisbon, Portugal
- C055 Das, T. and Mukherjee, R. (2007). Observer design for a steam reformer based solid oxide fuel cell system with anode recirculation. In *ASME International Mechanical Engineering Congress and Exposition*, pages 607–616, Seattle, WA
- C056 Issa, J., Mukherjee, R., Diaz, A., and Shaw, S. (2007). Analytical and experimental investigation of modal disparity. In *ASME International Mechanical Engineering Congress and Exposition*, pages 81–88, Seattle, WA
- C057 Albahkali, T., Mukherjee, R., and Das, T. (2007). Swing up control of the pendubot through energy management of the underactuated link. In *ASME International Mechanical Engineering Congress and Exposition*, pages 363–368, Seattle, WA
- C058 Das, T., Mukherjee, R., Nudehi, S., and Chatterjee, A. (2007). Design of switching laws for shared-sensing and control by reversible transducers. In *American Control Conference (ACC)*, pages 1395–1400, New York, NY
- C059 Shen, Y., Xi, N., Methil-Sudhakaran, N., Mukherjee, R., Zhu, D., Cen, Z., Mutka, M. W., Slomski, C. A., and Apelgren, K. N. (2007). Internet based tele-diagnostic interface for breast pathology. In *Third IASTED International Conference on Telehealth*, pages 130–135, Anaheim, CA
- C060 Shen, Y., Xi, N., Methil-Sudhakaran, N., Mukherjee, R., Zhu, D., Cen, Z., Mutka, M. W., Slomski, C. A., and Apelgren, K. N. (2007). Networked human/robot cooperative interface for tele-diagnostics of breast pathology. In *16th IEEE International Symposium on Robot and Human Interactive Communication*, pages 1090–1095, Jeju, Korea
- C061 Das, T., Narayanan, S., and Mukherjee, R. (2007). Model based characterization of transient response of a solid oxide fuel cell system. In *ASME International Mechanical Engineering Congress and Exposition*, pages 655–664, Seattle, WA
- C062 Methil, N. S. and Mukherjee, R. (2008). Adaptive control of a wheelchair-pushing holonomic robot subject to input constraints. In *SPIE, Unmanned Systems Technology X*, volume 6962, Orlando, FL
- C063 Albahkali, T., Mukherjee, R., and Das, T. (2008). An impulse-momentum approach to swing-up control of the pendubot. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 3750–3755, Nice, France

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- C064 Issa, J., Mukherjee, R., and Diaz, A. R. (2008). Energy dissipation through modal energy redistribution. In *ASME Dynamic Systems and Control Conference*, pages 9–16, Ann Arbor, MI
- C065 Issa, J., Mukherjee, R., and Diaz, A. R. (2008). Energy removal in dynamical systems through an optimal sequence of constraint application. In *ASME Dynamic Systems and Control Conference*, pages 259–261, Ann Arbor, MI
- C066 Issa, J., Mukherjee, R., and Shaw, S. W. (2008). Control of space structures using cable actuators. In *ASME Dynamic Systems and Control Conference*, pages 41–48, Ann Arbor, MI
- C067 Flynn, L. L., Jafari, R., and Mukherjee, R. (2009). Synthetic wheel prismatic joint biped with torso. In *ASME Dynamic Systems and Control Conference*, pages 747–754, Hollywood, CA
- C068 Hellum, A. M., Mukherjee, R., and Hull, A. J. (2009). Dynamics of pipes conveying fluid with a non-uniform velocity profile. In *ASME International Mechanical Engineering Congress and Exposition*, pages 1063–1072, Lake Buena Vista, FL
- C069 Luz, C., Bush, T., Rubinstein, J., Mukherjee, R., Elberling, J., Faucett, E., and Geimer, M. (2009). Falls and assistive device use: Novel fall prevention strategies. In *62nd Annual Meeting of the Gerontological Society of America*, volume 49, pages 245–245. Atlanta, GA
- C070 Issa, J., Mukherjee, R., and Diaz, A. R. (2009). Vibration suppression in space structures through cyclic application and removal of constraints. In *50th AIAA Structures, Structural Dynamics, and Materials Conference*, Palm Springs, CA
- C071 Flynn, L., Jafari, R., Hellum, A., and Mukherjee, R. (2010). An energy optimal gait for the MSU active synthetic wheel biped. In *ASME Dynamic Systems and Control Conference*, pages 851–858, Cambridge, MA
- C072 Hellum, A. M., Mukherjee, R., and Hull, A. J. (2010). Flutter instability of a fluid-conveying, fluid-immersed pipe affixed to a rigid body. In *7th ASME International Symposium on Fluid Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration and Noise*, pages 1015–1022, Montreal, Canada
- C073 Hellum, A. M., Mukherjee, R., and Hull, A. J. (2010). Dynamics of pipes conveying fluid with non-uniform turbulent and laminar velocity profile. In *7th ASME International Symposium on Fluid Structure Interactions, Flow-Sound Interactions, and Flow-Induced Vibration and Noise*, pages 1023–1030, Montreal, Canada
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- C075 AlSahlani, A. and Mukherjee, R. (2010). Dynamics and energetics of a string vibrating against an obstacle placed at one boundary. In *ASME International Design Engineering Technical Conference*, pages 867–872, Montreal, Canada
- C076 AlSahlani, A. and Mukherjee, R. (2010). Suppression of string vibration using a constraint actuator at one boundary. In *ASME International Design Engineering Technical Conference*, pages 721–727, Montreal, Canada
- C077 Flynn, L. L., Jafari, R., and Mukherjee, R. (2010). Design and control of an underactuated three-link rolling biped. In *IEEE International Conference on Robotics and Automation*, pages 3392–3397, Anchorage, AK
- C078 Ott, C., Mukherjee, R., and Nakamura, Y. (2010). Unified impedance and admittance control. In *IEEE International Conference on Robotics and Automation*, pages 554–561, Anchorage, AK

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- C080 Jafari, R., Mathis, F. B., and Mukherjee, R. (2011). Swing-up control of the acrobot: An impulse-momentum approach. In *American Control Conference*, pages 262–267, San Francisco, CA
- C081 Jafari, R. and Mukherjee, R. (2011). Balance maintenance of the synthetic-wheel biped in the presence of impulsive disturbances. In *American Control Conference*, pages 570–575, San Francisco, CA
- C082 AlSahlani, A. and Mukherjee, R. (2011). Dynamics simulation of a circular membrane with an eccentric circular areal constraint. In *ASME International Design Engineering Technical Conferences*, pages 1115–1125, Washington, DC
- C083 Das, T. K., Mukherjee, R., Sridhar, R., and Hellum, A. (2011). Two dimensional modeling and simulation of a tethered airfoil system for harnessing wind energy. In *ASME Dynamic Systems and Control Conference*, pages 811–818, Washington, DC
- C084 Strefling, P. C., Hellum, A. M., and Mukherjee, R. (2011). The synergistically propelled ichthyoid: Dynamic modeling, simulation, and experimental results. In *ASME Dynamic Systems and Control Conference*, pages 73–80, Washington, DC
- C085 Strefling, P., Hellum, A., and Mukherjee, R. (2011). Modeling, simulation, and performance of a synergistically propelled ichthyoid. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 4749–4755, San Francisco, CA
- C086 Lee, J., Mukherjee, R., and Khalil, H. K. (2012). Performance recovery under output feedback for input nonaffine nonlinear systems. In *51st IEEE Conference on Decision and Control*, pages 326–331, Maui, HI
- C087 Lee, J., Mukherjee, R., and Khalil, H. K. (2012). Control design for a helicopter using dynamic inversion and extended high gain observers. In *ASME Dynamic Systems and Control Conference*, pages 653–660, Ft. Lauderdale, FL
- C088 Hellum, A. M., Strefling, P. C., and Mukherjee, R. (2012). Maneuvering and control of a synergistically propelled ichthyoid. In *ASME Dynamic Systems and Control Conference*, pages 187–193, Ft. Lauderdale, FL
- C089 Jafari, R. and Mukherjee, R. (2012). Intermittent output tracking for linear single-input single-output non-minimum-phase systems. In *American Control Conference*, pages 5942–5947, Montreal, Canada
- C090 AlSahlani, A., Mathis, F. B., and Mukherjee, R. (2012). Vibration control of a string using a zero displacement constraint at a point near one boundary: Theory and experiments. In *ASME International Design Engineering Technical Conferences*, pages 1257–1261, Chicago, IL
- C091 AlSahlani, A. and Mukherjee, R. (2012). Energetics of a circular membrane subjected to a sudden eccentric circular areal constraint. In *ASME International Design Engineering Technical Conferences*, pages 1237–1245, Chicago, IL
- C092 Cai, T., Mukherjee, R., and Diaz, A. R. (2012). Vibration suppression in a tension aligned structure through sequential application and removal of constraints. In *ASME International Design Engineering Technical Conferences*, pages 1293–1300, Chicago, IL
- C093 Cai, T., Mukherjee, R., and Diaz, A. R. (2012). Vibration suppression in a pinned-pinned nonlinear rod using a frictionless slider. In *ASME International Design Engineering Technical Conferences*, pages 1285–1292, Chicago, IL

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- C094 Mathis, F. B. and Mukherjee, R. (2013). Apex height control of a two-mass hopping robot. In *IEEE International Conference on Robotics and Automation*, pages 4785–4790, Karlsruhe, Germany
- C095 Rinkus, S., Das, T., and Mukherjee, R. (2013). Stability analysis of a tethered airfoil. In *American Control Conference*, pages 5601–5606, Washington, DC
- C096 Jafari, R. and Mukherjee, R. (2013). Enlarging the region of attraction for underactuated systems using impulsive inputs. In *American Control Conference*, pages 5613–5618, Washington, DC
- C097 Jafari, R., Flynn, L. L., Hellum, A., and Mukherjee, R. (2013). Energy-conserving gaits for point-foot planar bipeds: A five-dof case study. In *ASME Dynamic Systems and Control Conference*, Palo Alto, CA
- C098 Lee, J., Mukherjee, R., and Khalil, H. K. (2013). Application of dynamic inversion with extended high-gain observers to inverted pendulum on a cart. In *American Control Conference*, pages 4234–4238, Washington, DC
- C099 Mathis, F. B. and Mukherjee, R. (2013). Apex height control of a four-link hopping robot. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 5121–5126, Tokyo, Japan
- C100 Crayne, K., Mathis, F. B., and Mukherjee, R. (2014). Active sliding synthetic wheel biped. In *American Control Conference*, Portland, OR
- C101 Zamani, V. and Mukherjee, R. (2014). Behavior of a cantilever beam subjected to a dynamic follower force. In *17th US National Congress on Theoretical and Applied Mechanics*, East Lansing, MI
- C102 Mathis, F. B. and Mukherjee, R. (2016). Two-mass robot hopping on an elastic foundation: Apex height control. In *IEEE First International Conference on Control, Measurement, and Instrumentation*, Kolkata, India
- C103 Allafi, A., Chahal, P., Mukherjee, R., and Khalil, H. K. (2016). A control strategy for eliminating bouncing in RF MEMS switches. In *ASME Dynamic Systems and Control Conference*, Minneapolis, MN
- C104 Chowdhury, D., Kant, N., Mukherjee, R., and Khalil, H. K. (2017). Enlarging the region of attraction of underactuated systems using sum of squares and impulse manifold method. In *American Control Conference*, Seattle, WA
- C105 Kant, N., Chowdhury, D., Mukherjee, R., and Khalil, H. K. (2017). An algorithm for enlarging the region of attraction using trajectory reversing. In *American Control Conference*, Seattle, WA
- C106 Chau, S., Aspelund, S., Mukherjee, R., Lee, M. H., Ranganathan, R., and Kagerer, F. (2017). A five degree-of-freedom body-machine interface for children with severe motor impairments. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Vancouver, Canada
- C107 Kant, N., Mukherjee, R., and Khalil, H. K. (2017). Swing-up of the inertia wheel pendulum using impulsive torques. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia
- C108 Allafi, A., Mathis, F. B., and Mukherjee, R. (2018). Apex height control of a two-mass robot hopping on a viscoelastic foundation. In *ASME Dynamic Systems and Control Conference*, Atlanta, GA

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## Refereed Conference Publications: – continued from previous page

- C109 Wang, Y., Zhu, G. G., and Mukherjee, R. (2018). Experimental study of NMP sample and hold input using an inverted pendulum. In *ASME Dynamic Systems and Control Conference*, Atlanta, GA
- C110 Kant, N., Mukherjee, R., and Khalil, H. K. (2019). Stabilization of homoclinic orbits of two degree-of-freedom underactuated systems. In *American Control Conference*, Philadelphia, PA
- C111 Abdullatif, M., Mukherjee, R., and Hellum, A. (2019). Damping-induced stability transitions in non-conservative systems: New thoughts on an old paradox. In *ASME International Design Engineering Technical Conference*, Anaheim, CA
- C112 Abdullatif, M., Mukherjee, R., and Hellum, A. (2019). Critical stability of a hinged beam with dynamic moment: With and without external flow. In *ASME International Design Engineering Technical Conference*, Anaheim, CA
- C113 Abdullatif, M. and Mukherjee, R. (2019). Effect of intermediate support on instabilities of a cantilever with terminal dynamic moment. In *ASME International Design Engineering Technical Conference*, Anaheim, CA
- C114 Allafi, A. and Mukherjee, R. (2019). Apex height control of a two-dof ankle-knee-hip robot hopping on a rigid foundation. In *ASME Dynamic Systems and Control Conference*, Park City, UT
- C115 Allafi, A. and Mukherjee, R. (2019). Ankle-knee-hip robot hopping on an elastic foundation and a viscoelastic foundation. In *ASME Dynamic Systems and Control Conference*, Park City, UT
- C116 Chau, S. and Mukherjee, R. (2019). Kinetic to potential energy transformation using an elastica. In *ASME Dynamic Systems and Control Conference*, Park City, UT
- C117 Chau, S. and Mukherjee, R. (2019). A variable-structure mass-elastica hopper. In *ASME Dynamic Systems and Control Conference*, Park City, UT
- C118 Kant, N. and Mukherjee, R. (2021). Energy-based orbital stabilization of underactuated systems using impulse controlled Poincaré maps. In *American Control Conference*, New Orleans, LA
- C119 Abhishek, V., Srivastava, V., and Mukherjee, R. (2021). Towards a heterogenous team of UAVs transporting a flexible cable. In *American Control Conference*, New Orleans, LA
- C120 Kant, N. and Mukherjee, R. (2021). Juggling a devil-stick: Hybrid orbit stabilization using the impulse controlled Poincaré map. In *60th IEEE Conference on Decision and Control*, Austin, TX

## Conference Presentations (No Proceedings):

- 01 Flynn, L. L. and Mukherjee, R. (2008). Prismatic-joint synthetic-wheel biped. In *Dynamic Walking Conference*, Delft, Netherlands
- 02 Flynn, L. L., Hellum, A., Jafari, R., and Mukherjee, R. (2009). Optimal gait of a synthetic wheel prismatic joint biped with torso. In *Dynamic Walking Conference*, Vancouver, Canada

## Patents:

- P01 Mukherjee, R. and Song, G. Articulated manipulator for minimally invasive surgery (AMMIS). June 09, 1998. US Patent 5,810,716
- P02 Christian, T. F. and Mukherjee, R. Actuation system for the control of multiple shape memory alloy elements. September 22, 1998. US Patent 5,763,979

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- P03 | Mukherjee, R. Spherical mobile robot. September 11, 2001. US Patent 6,289,263
- P04 | Minor, M. A. and Mukherjee R. Dexterous articulated linkage for surgical applications. October 30, 2001. US Patent 6,309,403
- P05 | Setiawan, J. D. and Mukherjee, R. Adaptive compensation of sensor run-out and mass unbalance in magnetic bearing systems without changing rotor speed. July 13, 2004. US Patent 6,763,285
- P06 | Wang, Y., Ghodoussi, M., Uecker, D., Wright, J., Mangaser, A. and Mukherjee, R. Minimally invasive surgical training using robotics and telecollaboration. February 08, 2005. US Patent 6,852,107
- P07 | Laby, K. P., Mukherjee, R. and Wang, Y. Robot with a manipulator arm. January 09, 2007. US Patent 7,161,322
- P08 | Ghodoussi, M., Mangaser, A., Mukherjee, R., Uecker, D., Wang, Y. and Wright, J. Minimally invasive surgical training using robotics and telecollaboration. August 19, 2008. US Patent 7,413,565
- P09 | Kumar, R., Hoffman, B., Prisco, G., Larkin, D., Nowlin, W., Moll, F., Blumenkranz, S., Niemeyer, G. D., Salisbury, J. K., Wang, Y., Ghodoussi, M., Uecker, D., Wright, J., Mangaser, A. and Mukherjee, R. Multi-user medical robotic system for collaboration or training in minimally invasive surgical procedures. September 03, 2013. US Patent 8,527,094
- P10 | Kavuturu, S. and Mukherjee, R. Surgical tool with pressure sensor. May 25, 2021. US Patent 16/174,984

## Book Chapters:

- 01 | Nakamura, Y. and Mukherjee, R. (1991). Nonlinear control for the nonholonomic motion of space robot systems. In Canudas de Wit, C., editor, *Advanced Robot Control*, volume 162 of *Lecture Notes in Control and Information Sciences*, pages 83–105. Springer Berlin Heidelberg
- 02 | Nakamura, Y. and Mukherjee, R. (1993). Nonholonomic motion planning of free-flying space robots via a bi-directional approach. In Xu, Y. and Kanade, T., editors, *Space Robotics: Dynamics and Control*, volume 188 of *The Kluwer International Series in Engineering and Computer Science*, chapter 5, pages 101–130. Springer US
- 03 | Mukherjee, R. and Nakamura, Y. (1994). Reorientation of free-flying multibody structures in space using appendage movement. In Skaar, S. B. and Ruoff, C. F., editors, *Teleoperation and Robotics in Space*, volume 161 of *Progress in Aeronautics and Astronautics*, chapter 13, pages 259–290. AIAA

## Publication Indices:

Citations:	6670		Last updated: August 22, 2021
h-index:	39		
i10-index:	97		

Google scholar page: <http://scholar.google.com/citations?user=m6fZXgQAAAAJ>

## Research Cited in Popular Press:

The Kindest Cut of All. *Medical Device and Diagnostic Industry Magazine*. July 1998.  
Inventing The Robotic Soldier. *New York Times*, Patents Column, pg C2. October 01, 2001.  
Robotic Soldier. *KTTV Fox 11 Television*, Los Angeles. October 02, 2001.  
Patented Rolling Robot could Debut with a Bang. *The Plain Dealer*, Cleveland. October 11, 2001.  
Artificial Life. *India Today*, pg 40d. November 05, 2001.  
Having a Ball. *The Economist*, Science and Technology, pg.87. December 15, 2001.  
Engineering Professor Invents Robotic Soldier. *National Society of Professional Engineers*, pg.12. December 2001.  
UCLA opens Medical Robotics Center. *United Press International*. August 30, 2002.  
Robotic Warfare. *New York Times Magazine*, pg.118. December 15, 2002.  
New Technology to Help Screen Women for Breast Cancer. *WILX 10 Television*, Lansing. June 16, 2005.  
MSU Robotic Arm is Capable of Doing Breast Exams. *medGadget*. June 30, 2005.  
Robotic Arm Performs Remote Breast Check. *New Scientist*. July 05, 2005.  
Robotic Exams. *NASA Tech Briefs Insider*, July 20, 2005.  
GoDigital. *BBC Science Radio*. August 01, 2005.  
MSU Professor Works to Create Service Robots. *Lansing State Journal*. July 25, 2009.  
An Arm for Zeke. *Lansing State Journal*. March 19, 2017.  
Boy without Arms or Legs tests Robotic Arm. *USA Today*. March 24, 2017.

## University Service: Michigan State University

Department of Mechanical Engineering:	Advisory Committee Curriculum Committee Peer Rating Committee Faculty Search Committees Chair Search Committee
College of Engineering:	Engineering College Advisory Committee Promotion and Tenure Committee Grievance Committee Cooperative Education Committee
University:	Proposal Review

## External Service and Activities:

Fellow	ASME
Senior Member	IEEE
Program Committee Member	ASME/IEEE International Conference on Advanced Intelligent Mechatronics, Como, Italy, 2001
Program Committee Member	ASME/IEEE International Conference on Advanced Intelligent Mechatronics, Kobe, Japan, 2003
Program Co-Chair	ASME/IEEE International Conference on Advanced Intelligent Mechatronics, Monterey, CA, 2005

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**External Service and Activities:** – *continued from previous page*

Advisory Committee Member	International Conference on Mechanisms and Machines, Kanpur, India, 2015; Bombay, India, 2017
Editor-in-Chief	ASME Journal of Dynamic Systems, Measurement and Control, July 2019 - June 2024
Senior Editor	IEEE/RSJ International Conference on Intelligent Robots and Systems, 2019-2020
Associate Editor	IEEE Robotics and Automation Letters July 2015 - June 2018
Associate Editor	ASME Journal of Dynamic Systems, Measurement and Control, July 2001 - June 2008
Associate Editor	ASME Journal of Vibration and Acoustics July 2010 - June 2013
Associate Editor	IEEE Control Systems Society Conference Editorial Board, 2000 - 2007
Associate Editor	ASME Dynamic Systems and Control Division Conference Editorial Board, 2008 - 2009
Member, Strategic Planning Committee	ASME Dynamic Systems and Control Division in 2008 and in 2013
Secretary	ASME Dynamic Systems and Control Division July 2010 - June 2013
Member, Executive Committee	ASME Dynamic Systems and Control Division July 2013 - June 2018
Faculty Selection Committee	Department of Engineering Design and Production Aalto University, Finland, 2015
Reviewer, Proposals	ACS, AFOSR, NSF, etc.
Reviewer, Journal Papers	AIAA Journal of Guidance Control and Dynamics; ASME Journal of Mechanical Design; ASME Journal of Dynamics Systems Measurement and Control; Automatica; IEEE Transactions on Automatic Control; IEEE Transaction on Mechatronics; IEEE Transactions on Robotics; International Journal of Robust and Nonlinear Control; Journal of Sound and Vibration; Journal of Fluids and Structures; Systems and Control Letters; etc.
Session Chair at Conferences	American Control Conference; ASME Dynamics and Control Conference; IEEE International Conference on Robotics and Automation; IEEE Decision and Control Conference; IEEE Conference on Advanced Intelligent Mechatronics; etc.
Invited Speaker	Frontier Session on Bio-Robotics 2008 ASME Dynamic Systems and Control Conference

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**External Service and Activities:** – *continued from previous page*

Keynote Speaker

2013 IFToMM Conference on Machines & Mechanisms  
Indian Institute of Technology, Roorkee, India

Consulting

NASA Jet Propulsion Laboratory, Pasadena, CA  
Intuitive Surgical, Inc., Sunnyvale, CA  
SeaLandAire Technologies, Jackson, MI  
Arevo Labs, Santa Clara, CA  
Carlson, Gaskey and Olds P. C., Birmingham, MI  
Troutman Pepper Hamilton Sanders LLP, Southfield, MI

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