G. K. Ananthasuresh

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Academic Preparation

Post-doc — Research Associate, Microsystems Technology Laboratories, Electrical Engineering and Computer Science Dept., Massachusetts Institute of Technology, Cambridge, MA, February 1995 – September 1996. Adviser: Prof. Stephen D. Senturia

PhD — Mechanical Engineering, University of Michigan, Ann Arbor, MI, December, 1994.

Thesis: A New Design Paradigm for Micro-Electro-Mechanical Systems and Investigations on Compliant Mechanism Synthesis. Adviser: Prof. Sridhar Kota

MS — Mechanical Engineering, University of Toledo, Toledo, Ohio, March 1991.

Thesis: Geometry-based Analysis and Optimal Synthesis of the RSCR Spatial Mechanism. Adviser: Prof. Steven N. Kramer

BTech — Mechanical Engineering, Indian Institute of Technology, Chennai (Madras), India, May 1989. Adviser: Prof. K. Lakshiminarayana (for the final-year project)

Synopsis

- Advising
  - Post-doctoral researchers: **14** (past 13; and present 1)
  - Doctoral students: **38** (past 24; and 14 present); 8 in academia; 12 in industry; 4 entrepreneurs who have founded three startup companies
  - Master's degree students: **46** (past 42; and present 4)
  - Research project staff supported by grants: **100+**; Summer interns: **60+**
- Start-up companies from the research group: **5** (BendFlex and SpOvum; Mimyk; Translead MedTech; InFab Technologies; StrideAide Pvt. Ltd.)
- Products developed and translated by the research group: **9**
- Companies consulting/consulted: **12**
- **16** best paper awards and **10** design prizes in national and international conferences.
- **116** journal; **201** conf. (**123** full-paper peer-reviewed); **2** textbooks; **5** edited books; **18** book-chapters
- **21** granted patents and **1** in process.
- Courses developed and taught: 5 + 2 (lab) in UPenn, 8 in IISc and 3 NPTEL courses including two MOOCs; one course in IISc-Centre for Continuing Education; one half module in a Talent Sprint course.
- Distinguished lectures: **24**
- Served on editorial boards of **5** international and **4** national journals of repute.
- Significant service at IISc: Dean, Division of Mechanical Sciences (2021-2025); Chair of Mechanical Engineering (2020-2021); helped establish the Centre for BioSystems Science and Engineering as its founding-co-chair and formulating the PhD programme in Bioengineering (2012-2020); helping to set up the IISc Press, helping transform the Journal of IISc as a Multidisciplinary Reviews Journal (2007) and serving as its Editor-in-Chief (2014-present); re-building the IISc website (2016-2018); and founding co-Associate Chair of the Robert Bosch Centre for Cyber Physical Systems (2011-2013).

Research Interests

Computational Mechanics and Optimal Design applied to:

Compliant Mechanisms | Topology Optimization | Micro-Electro-Mechanical Systems | Kinematics of Mechanisms | Biomechanics of Cells | Biomedical Devices

Academic appointments

2009 Jul. – Present	Professor, Department of Mechanical Engineering, Indian Institute of Science, Bengaluru, India.
2015 Oct.-Jul. 2016	Associate Faculty, Robert Bosch Centre for Cyber Physical Systems, IISc
2014 Nov.- Present	Associate Faculty, Centre for Nano Science and Engineering, IISc
2007 Aug. - Present	Associate Faculty, Centre for Product Design and Manufacturing, IISc
2004 Aug.- Jun. 2009	Associate Professor, Department of Mechanical Engineering, IISc
2002 Jul.- Jul. 2004	Associate Professor, Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, PA, USA
1996 Sep.-2002 Jun.	Assistant Professor, Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania, Philadelphia, PA, USA
1995 Feb.-1996 Sep.	Postdoctoral Research Associate, Microsystems Technology Laboratories, Electrical Engineering and Computer Science Dept., Massachusetts Institute of Technology, Cambridge, MA, USA
1991 Jan. -1994 Dec.	Research and Teaching Assistant, Department of Mechanical Engineering and Applied Mechanics, University of Michigan, Ann Arbor, MI, USA

Administrative Appointments

2021 Aug.-2025 Apr.	Dean, Division of Mechanical Sciences, IISc
2020 Feb.-2021 Jul.	Chair, Mechanical Engineering, IISc
2015 June-Jan. 2020	Founding Co-chair, Centre for BioSystems Science and Engineering, IISc
2012 Aug.-Jun. 2015	Coordinator, Bioengineering PhD Programme, Indian Institute of Science, Bangalore, India
2011 May -Jun. 2013	Associate Chair, Robert Bosch Centre for Cyber Physical Systems, IISc.
2001 Jul.-Jul. 2004	MEAM Graduate Group Chair, University of Pennsylvania, USA

Visiting Appointments

2013 Aug.-Dec.	Visiting Professor, Mechanical Engineering, Indian Institute of Technology, Kanpur, India
2003 Oct.-Dec.	Visiting Professor, ESAT-MICAS (Microelectronics and Sensors, Electrical Engineering), Katholieke Universiteit, Leuven, BELGIUM.
2003 Jul.-Sep.	Visiting Professor, Mechanical Engineering, Indian Institute of Science, Bangalore, INDIA.
2003 Jan.-Jun.	Academic Visitor, Division of Mechanics, Materials, and Design, Engineering Department, University of Cambridge, Cambridge, UK.
1997 Jul. 1-31	Visiting Scholar at the Center for Computational Design, Rutgers University, Piscataway, NJ, USA.

Academic Recognitions

Recognitions as a faculty member

- Award of Merit (2019) annually given by the International Federation for the Promotion of Mechanism and Machine Science (IFToMM).
- IISc Alumni Award for Research Excellence in Engineering, 2018.
- Abdul Kalam Technology Innovation National Fellowship by Indian National Academy of Engineering (INAE) and the Department of Science and Technology (DST), 2018-2021. Extended by two years to 2023.
- Shanti Swarup Bhatnagar Prize for 2010 in Engineering Sciences given by Council for Scientific and Industrial Research (CSIR), the Government of India.
- Fellow of the Indian National Academy of Engineers (INAE), 2010.
- Swarnajayanthi Fellowship (2007-2012) of the Department of Science and Technology (DST) of the Government of India.
- National Science Foundation (NSF) Faculty Early Career *(CAREER)* Award, 1998-2002 from the Design, Manufacture and Industrial Innovation (DMII) division, USA.
- Ralph R. Teetor Educational Award given by the Society of Automotive Engineers (SAE), 2000.

Recognitions as a student

- A citation for top ten *Distinguished PhD Dissertations* by the Graduate School of University of Michigan in 1994.
- *Horace H. Rackham Pre-Doctoral Fellowship*, University of Michigan, 1993-1994

Best paper awards

1. Best Paper award for "Mechanical logic gates and processors using shallow arches" at the American Society of Mechanical Engineers (ASME) International Design Engineering Technical Conferences, Boston, MA, Aug. 21-23, 2023.
2. Best Paper award for "Control of multiple ferro-bots for steady motion using an array of electromagnets," at the 5th International and 20th National Conference on Mechanisms and Machines held in Jabalpur in the blended mode, Dec. 9-12, 2021.
3. Best Student Paper award for "Surface-profile Accuracy of Deployable Mesh Reflectors based on focal Offset" at the 4th International and 19th National Conference on Mechanisms and Machines held in Mandi, India, December 5-7, 2019.
4. Best Student Paper award in Micromachines category, "Modelling of an Initially-retracting Electrothermal Microactuator," IFToMM World Congress on Mechanisms and Machines, June 30 - July 4th, 2019, Krakow, Poland.
5. Best Paper in oral presentations at the 5th Asian Mechanisms and Machine Science Conference, Dec. 17-19, 2018, Bengaluru, India.
6. Best Paper award at the 2nd International and 17th National Conference on Machines and Mechanisms, Dec. 16-18, 2015, Kanpur, India.
7. Best Application Paper Award at the 2015 IFToMM World Congress, Oct. 25-30, 2015, Taipei, Taiwan.
8. Best Paper Award at the 6th International Conference on Computational Methods, Auckland, New Zealand, 14-17 July, 2015.
9. *Best Paper Award* at the National Conference on Mechanisms and Machines (NaCoMM-13) held in Roorkee, India, December 18-20, 2013.
10. *Best Paper Award* at the National Conference on Mechanisms and Machines (NaCoMM-11) held in Chennai, India, December, 1-2, 2011.
11. Second best paper among the papers published in the IEEE Transactions on Robotics in 2010.
12. *Best Paper Award* at the National Conference on Mechanisms and Machines (NaCoMM-09) held in

Durgapur, India, December, 17-18, 2009.

13. Mechanisms and Robotics Committee's *Best Paper Award* at the 28th Mechanisms and Robotics Conference at the ASME 2004 International Design Engineering and Technical Conferences, Salt Lake City, Utah, USA.
14. Two finalist papers out of six for the *Best Paper Award* at the 27th Mechanisms and Robotics Conference at the ASME 2002 International Design Engineering Technical Conferences, Montreal, Canada.
15. *Best Paper Award* at the International Applied Mechanisms & Robotics Conference, Cincinnati in 1999.
16. *Best Paper award* at the International Applied Mechanisms & Robotics Conference, Cincinnati in 1993.

Design prizes

As a student

1. *First Prize* in the *1994 ASME Student Mechanism Design Competition* (Graduate Category with Laxman Saggere) [**A One-piece Compliant Stapler**]

For student advisees

2. Adviser of the prize-winning mechanism in iNaCoMM mechanism design contest, January, 2018 [**A compliant hinge mechanism using shells that bend and twist simultaneously and with tunable torque-angle characteristics**]
3. Adviser of the prize-winning mechanism in ASME Mechanisms and Robotics Design Contest, 2016. R. Harisankar and Chaitanya Karwa. [**A Compliant Mechanism for Grasping and Rolling Rigid and Elastic Objects**]
4. Adviser of the prize-winning Mechanism Simulation at the 2014 Inaugural ASME Challenge contest in the Best Impact Simulation for Product Design category. Darshan Sarojini, Akshay Varik, and Anirudh Katti [**A Bistable Compliant Chair for the Elderly**]
5. Adviser of the prize-winning Mechanism Design Contest (graduate category) entry (third prize) at the ASME International Design Engineering Technical Conferences, Portland, OR, USA, August 4-13, 2013. Santosh D. B. Bhargav [**A Compliant Device to Stretch an Elastic Object**]
6. Adviser of the Best Student-Paper Award (undergraduate category) at the sixth ISSS Conference on MEMS held in Pune, India, Sep., 2013. Jagjeet Singh [**A Mind-controlled Toy-car Navigated by Thinking and Blinking**]
7. Adviser of the Best Student-Paper Award (post-graduate category) at the sixth ISSS Conference on MEMS held in Coimbatore, India, Sep., 2012. Sambuddha Khan [**A Two-degree-of-freedom Micromachined Accelerometer with Mechanical Amplification**]
8. Adviser of the prize-winning entry (undergraduate category) at the ASME Student Mechanism Contest, International Design Engineering Technical Conference, Philadelphia, USA, Sep., 2006. First prize: Jiten Patel [**A Circumferentially Actuated Radially Deploying Mechanism**]
9. Adviser of the prize-winning entry (graduate category) at the ASME Student Mechanism Contest, International Design Engineering Technical Conference, Philadelphia, USA, Sep., 2006. Second prize: Girish Krishnan [**A Force Sensor using a Displacement-amplifying Compliant Mechanism**]
10. Adviser of the prize-winning entry in the mechanism design contest (undergraduate category), Applied Mechanisms and Robotics Conference, Cincinnati, OH, USA, 2000. [**An Automating Mechanism for Changing Compact Disks in a Backup System**]

Distinguished Lectures

1. Dr. K. Janakiraman Memorial Oration, "An Engineer's Foray into Diabetic Footcare," June 23, 2024, Salem, Tamil Nadu, India.

2. Keynote Lecture at the National Conference on Multidisciplinary Design, Analysis, and Optimization, "Structural Optimization using Topological derivatives," Dec. 12, 2023, IIT-Guwahati, India.
3. Keynote Lecture at International Conference on Micro Mechanisms and Microactuators (MAMM-2022), "Micromachinery for Mechano-diagnostics," IIT-Hyderabad, Dec. 5, 2022.
4. International Council of Academies of Engineering and Technological Sciences (CAETS) Invited Lecture in Disruptive technologies and global R&D trends, "Micromachinery for Mechano-diagnostics," Sep. 28, 2022, Paris, Versailles, France.
5. Centenary Lecture of Mechanical Engineering at the Indian Institute of Engineering Sciences and Technology, "Positive Outcomes with Negative Stiffness," June 14, 2022, Shibpur, West Bengal, India.
6. Innovation Harbour Lecture on "Grasping Cells: Towards Mechano-diagnostics", Xi'an Jiaotong University, China, May 24, 2022.
7. T. V. Krishnaswamy Raju Memorial Lecture on "Topology Optimization for Additive Manufacturing," Anna University, Chennai, Feb. 3, 2020.
8. Prof. K. Lakshminarayana Memorial Lecture on "Analytical Synthesis of Mechanisms", Dec. 7, 2019, 4th International and 19th National Conference on Mechanisms and Machines, Mandi, HP, India.
9. S. R. Anantha Krishna Memorial Lecture on "Grasping Cells" in the 41st Annual Science Festival of Bengaluru Science Forum, July 18th, 2018.
10. Keynote Lecture on "Tools and Techniques for Mechanodiagnostics" at International Conference on Manipulation, Automation, and Robotics at Small Scales, MARSS 2018, July 4-8, 2018, Nagoya, Japan.
11. IISc Institute Colloquium, Oct. 30, 2017, on "Bistability".
12. Keynote lecture on "Bistable Compliant Mechanisms: Design, Manufacture, and Applications" in International Conference on Precision, Meso, Micro, and Nano Engineering (COPEN 10), Dec. 7-9, 2017, Chennai.
13. Plenary Lecture on "The Art and Signs of Good MEMS Designs", 8th ISSS International Conference, Bengaluru, July 5-7, 2017.
14. "Design, Materials, and Manufacturing: the Intersection," Keynote talk at the Conference on Precision Engineering, Dec. 11, 2015, Mumbai, India.
15. "Grasping Biological Cells," Plenary Lecture at the 2015 Annual Meeting of the Society for Mathematical Biology, June 30 – July 2015, Atlanta, GA, USA.
16. "Mechanics of a Click-clack Tin Lid," R. S. Pande Distinguished Lectureship, March 28th, 2015, Indian Institute of Technology, Kanpur, Kanpur, India.
17. "Judicious Use of Materials for Bending," MRSI Distinguished Lecture 2014-2015, Feb. 10, 2015, Jaipur, India.
18. "Compliant Robotics", Keynote Lecture at the Aerospace and Related Mechanisms Conference, Dec. 31, 2014, Bengaluru, India.
19. "Non-dimensionality in Nonlinear Mechanics of Slender Elastic Objects," B. Karunes Memorial Lecture at the Annual Meeting of the Indian Society for Theoretical and Applied Mechanics, Bengaluru, India, Dec. 18, 2014.
20. "Small, Smart, Magical Innovations," Plenary Lecture at the 5th ISSS National Conference on MEMS,

Smart Materials, Structures and Systems, Sep. 21-22, 2012, Coimbatore, India.

21. Ananthasuresh, G. K., "Bridging the Gap between Compliant Mechanisms and Structures and Rigid-body Linkages," Closing Plenary, Second International Symposium on Compliant Mechanisms, May 19-20, 2011, Delft, the Netherlands.
22. "Interplay among Design, Manufacture, and Materials," Keynote lecture at the National Conference on Design and Manufacturing, Indian Institute of Information Technology, Design, and Manufacturing-Kancheepuram, IIT-Madras campus, Chennai, May 27, 2011.
23. "Function, Form, and Structure in Microsystems", National Technology Day distinguished lecture to Naval Science and Technology Laboratory, Visakhapatnam, May 11, 2011.
24. "Life is very mechanical", CSIR Foundation Day Eminent Lecture, Central Mechanical Engineering Research Institute, Durgapur, West Bengal, October 26th, 2010.

Teaching Experience

Indian Institute of Science

ME 237	*Introduction to MEMS.* (Jan. 2005, annually Aug. 2009-14) www.mecheng.iisc.ernet.in/~suresh/me237
ME256	*Variational Methods and Structural Optimization*. (Aug. 2005; May-Jun., 2006; annually Jan, 2007-2019) www.mecheng.iisc.ernet.in/~suresh/memscourse/me256
ME260	*Topology Optimization*. (Jan.-Apr.., 2006; Aug.-Dec., 2007; May-Jun., 2008; Aug.-Dec., 2009; Aug. – Dec., 2012,2014, 2015, 2018, 2019) www.mecheng.iisc.ernet.in/~suresh/memscourse/me260
ME260 (revised)	*Structural Optimization: Topology, Shape, and Size* (Oct. 2020, annually Aug. 2021-present) mecheng.iisc.ac.in/suresh/me260
BE 205	*Introduction to Biomechanics of Solids* (annually Jan. 2013-2016) www.mecheng.iisc.ernet.in/~suresh/be205
BE 214	*Fundamentals of Bioengineering 2: Part 2, Biomechanics of Solids (Jan. 2020, Oct. 2020)*
MN 203	*Design for Additive Manufacturing, Part 1* (annually Jan. 2020-present)
ME 254	*Compliant Mechanisms* (annually Jan. 2021-present)

University of Pennsylvania

MEAM / EE 550	*Modeling and Design of Micro-Electro-Mechanical Systems (MEMS)*. New graduate level course. (Fall 1998, Fall 2001, Spring 2004) www.seas.upenn.edu/~meam550
MEAM 540	*Optimal Design of Mechanical Systems*. New graduate level course. (Fall 1997, Fall 2000, Fall 2002) www.seas.upenn.edu/~meam540
MEAM 535	*Advanced Dynamics*. Graduate level course. (Fall 1999) www.seas.upenn.edu/~meam535/fall99
MEAM 690	Special Topics: *Microfabrication and Micromachining* (w/ laboratory). (Spring 1998)
MEAM 310	*Design of Mechanical Systems*. Undergraduate course. (Spring 1997-2002) www.seas.upenn.edu/~meam310
MEAM 347	Two labs on the *Design and Manufacture of a Compliant Mechanism.* (Spring 1998-2000), and one lab (2001-2002).
MEAM 247	Two labs on Computer Aided Design and Computer Aided Manufacturing

(CAD/CAM). (Spring 1999-2002).

Advising

Postdoctoral and other research associates				
University of Pennsylvania, Philadelphia				
S. No.	**Name**	**Duration**	**Topic of research**	**Currently position**
1	Jun Li	1999-2000	Micromanufacturing in silicon, polymers, and metals	Employed in Canada
2	Dr. Luzhong Yin	2000-2002	Topology optimization using multiple materials in multiple energy domains; design for distributed compliance	Employed in the USA
Indian Institute of Science, Bengaluru				
3	Dr. Hamaraju Pollayi	2010-2011	Thermoelastic damping	Not in touch
4	Dr. Charanjeet Malhi	2015-2016	Microfabrication of bistanble switches	Employed in India
5	Dr. Sambuddha Khan	2016-2017	Microfabrication of cell scaffolds	Tyndall, Dublin, Ireland
6	Dr. Sudhanshu Shekhar	2017-2024	Microfabrication of bistable switches, cell stretcher, micromachined logic processors, etc.	Founded InFab Technologies Pvt. Ltd; Research Manager at CeNSE@IISc
7	Dr. Sreenath Balakrishnan	2018-2019	Mechanics of biological cells	Assistant Professor, IIT-Goa
8	Dr. Jose Joseph	2018-2019	Soil-moisture sensor modeling and packaging	Assistant Professor, Digital University of Kerala, Thuruvananthapuram
9	Dr. Satish Bonam	2019-2020	Soil-pH sensor	Not in touch
10	Dr. Safvan Palathingal	2019-2020	Miniature pump using bistable arches	Assistant Professor, IIT-Hyderabad
11	Dr. Akshay Desai	2020-2021	Isogeometric Analysis and optimization of thermoelatic structures with cyclic symmetry	Bosch, Bengaluru
12	Dr. Kandula Sai Kumar	2020-2022	Micromachined disk resonator gyroscope	Postdoc at University of California, San Diego, USA
13	Dr. Nikila Nair	2021-present	Soil-pH sensor	-
14	Dr. Shilpa	2022-2025	Biomechanics of cells	SpOvum Technologies,

	Ramachandra Raju			Bengaluru

Doctoral students				
University of Pennsylvania, Philadelphia				
S. No.	**Name**	**Duration**	**Topic of research**	**Currently position**
1	Dr. Venkat Krovi (co-advisee with Prof. Vijay Kumar)	1996-1998	Design and Virtual Prototyping of Assistive Devices	Professor at Clemson University, USA
2	Dr. Anupam Saxena	1997-2000	Topology Optimization of Geometrically Nonlinear Compliant Mechanisms for Flexibility, Stiffness, and Strength	Professor, IIT-Kanpur
3	Dr. Moon Kim (co-advisee with Prof. Haim Bau)	1996-2001	Electromagnetic Actuation in Ceramic Tape and Kapton Based Meso-scale Electromechanical Systems	Employed in USA
4	Dr. Xiaoye Wang (co-advisee with Prof. Jim Ostrowski)	1997-2022	Vision-Based Noninvasive Force sensing and Manipulation of Micro Objects	Worked in industry; diseased
5	Dr. Nilesh Mankame	2000-2004	Contact-aided Compliant Mechanisms	General Motors, Warren, MI, USA
6	Dr. Sung Koh	2000-2005	Protein design using continuous models and deterministic optimization methods	Faculty in South Korea
Indian Institute of Science, Bengaluru				
7	Dr. Annem Narayana Reddy	2005-2010	Inverse problems in elastic mechanics, micromanipulation and mechanical characterization of biological cells	Deceased as Assistant Professor in IIT-Guwahati
8	Dr. Sourav Rakshit	2006-2011	De Neuvo Design and Coarse-grained modeling of proteins	Assistant Professor, IIT-Madras
9	Dr. Sangamesh Deepak	2006-2012	Static balancing of rigid-body and compliant mechanisms	Assistant Professor, IIT-Dharwad
10	Dr. Sudarshan Hegde	2006-2012	Selection maps for compliant mechanism design	Bosch, Bengaluru
11	Dr. Sambuddha Khan (co-advisee with Prof. H. M. Jamadagni)	2006-2013	High-resolution micromachined accelerometers	Tyndall, Dublin, Ireland
12	Dr. Sudhanshu Shekhar	2007-2015	Design, Fabrication, and Characterization of Low-voltage	Co-founder of InFab; Currently at CeNSE,

			Capacitive RF MEMS Switches	IISc
13	Dr. Santosh Bhargav	2018-2013	Design and Development of Miniature Compliant Grippers for Bio-micro-manipulation and Characterization	Co-founder of BendFlex and SpOvum
14	Dr. Kiran Akella (External Registration Student)	2006-2015	Studies for Design of Layered Ceramic Armour Inspired by Seashells	Scientist G in R&D-E (Engineers), Pune
15	Dr. Biplab Sarkar (co-advisee with Prof. Amaresh Chakrabarti)	2009-2015	Synthesis for Conceptual Designs for Sensors	Employed in Bengaluru
16	Dr. T. J. Ramnath Babu	2009-2014	A Discretized Approach to Modelling Growth with Application to Shape-matching Inverse Problem in Leaf-growth	Co-founder of BendFlex and SpOvum
17	Dr. Nandhini Devi Nehru	2010-2015	Selection-based Design Methodology using Feasibility Maps	Employed as a Research Manager, Melbourne, Australia
18	Dr. Shanthanu Chakravarthy	2010-2016	A Haptic Simulator for Gastrointestinal Endoscopy: Design, Development, and Experiments	Co-founder of Mimyk, Bengaluru
19	Dr. Nilanjan Chattaraj (co-advisee with Prof. Ranjan Ganguli	2010-2015	Flapping-wing Air Vehicles: Design and Optimization	Assistant Professor, NIT-Durgapur
20	Dr. Sreenath Balakrishnan (co-advisee with Prof. Saumitra Das)	2012-2018	Investigations into Changes in Biomechanics of Liver Cells upon Hepatitis Virus Infection	Assistant Professor, IIT-Goa
21	Dr. Safvan Palathingal	2014-2019	Statics of Shallow Bistable Arches	Assistant Professor, IIT-Hyderabad
22	Rahul Singh Kotesa	2014-diseased	Air-squeeze Method for Biological Cell Characterization	Diseased in 2019
23	Dr. Akshay Desai	2015-2020	Topological Derivative-based Optimization of Fiber-reinforced Structures, Coupled Thermoelastic Structures, and Compliant Mechanisms	Bosch, Bengaluru
24	Dr. Prasenjit Ghosh	2017-2022	Discrete particulate description	Microsoft Research,

			of elastic structures undergoing geometrically nonlinear deformation and dynamic particle interaction	Bengaluru
25	Priyabrat Maharana	2017-submitted	Dynamics of Shallow Arches (submission in 2023)	BosonQPsi, Bengaluru
26	Vageesh Singh Baghel	2017-submits soon	Topological Derivatives and Structural Optimization in 1D, 2D, 3D, and 4D	Current
27	A. Rinku (External Registration programme)	2013-discontinued	Hierarchy and Modularity in Structural Optimization	National Aerospace Laboratories, Bengaluru
28	Anwesha Barua (co-advisee with Prof. Saumitra Das)	2018-submits soon	Biomechanics of Liver Fibrosis	Current
29	Sudhanva Bhat	2018-submits soon	A Novel Magnetic Platform for Localized Motion and Control of Soft Ferromagnetic Robots	Current
30	Vivek Khatua (co-advisee with Prof. B. M. Gurumoorthy)	2020-	Development of an Additive Manufacturing Machine Fiber-reinforced Polymer Composite Parts	Current
31	Deepak Kumar Gupta	2020-	Graphics Statics for the Design of Compliant Mechanisms	Current
32	Avinash Kumar (External Registration programme)	2014-	Mode Shape Synthesis using Analytical and Data-driven Methods	Honeywell, Bengaluru
33	Ipe Mathew (External Registration Programme)	2022-	Topology Optimization for Two-fluid Heat Exchangers	LRDE-Bengaluru
34	Narahari (Quality Improvement Programme)	2023-	Feasibility Maps and Non-dimensionality Approaches for the Selection-based Design of Compliant Mechanisms	B. M. S. College of Engineering, Bengaluru
35	Ripusudan Agrawal (External Registration Programme)	2023-	Mechanics of Shells undergoing Snap-through and Mult-stable Motions	SAC-ISRO, Ahmedabad
36	Raghu Nandan (co-advisee with Prof. Kaushal Verma)	2023-	Transitions in Triply Periodic Minimal Surfaces	Current
37	Lubaid Nisar	2024-	Development of a Mechanical Sandworm through Insights from	Current

			Particle-structure Interactions	
38	Raghavendra Katragadda	2024-	Foot Digital Twin using Data-driven Methods	Current

Master's students

Masters students at the University of Pennsylvania

1	Elizabeth Lai	Graduated in June 1998	Research topic: Design of Bars and Beams for Desired Mode Shapes
2	Timothy Moulton, IDEO	Graduated in March 2000	Microfabrication and Design of Electro-Thermal-Compliant MEMS
3	Nilesh Mankame Currently a PhD student	MS in June 2000	Comprehensive Electro-Thermal-Elastic Modeling of ETC Micro Devices
4	Xu Dong, Wharton Computing	Graduated in June 2000	Shape Optimization of Skeletal Frames of Compliant Mechanisms
5	Andy Perrin	Graduated in June 2002	Topology Optimization Compatible with Surface Micromachining

MSc (Engg.) and MTech (Reseacrh) students at the Indian Institute of Science

6	Girish Krishnan	2004-2006	Displacement-amplifying Compliant Mechanisms
7	V. S. S. Srinivas	2005-2007	Topology Optimization of Passive heat Sink with Phase-Change Material
8	M. Dinesh	2006-2008	Compliant XY stage for precision applications
9	Shyamsananth Madhavan	2008-2010	Force-amplifying compliant mechanisms for resonant microsensors
10	Harish Varma Indukuri	2009-2012	Feasibility and Intrinsic Kinetoelastostatic Curves for Compliant Mechanisms
11	Jagdish Pratap Singh	2011-2014	Micro-scale Mechanical Suspensions
12	Saurabh Mittal	2012-2014	Micromachined frequency-tunable beams
13	Vishal Bagade	2011-2015	Circuit Breakers
14	Vikranth Kumar Reddy	2016-2019	Cable-driven robots with orientability and moment loads

ME/MTech students at the Indian Institute of Science

15	Saurav Rakshit	2005-2006	Simultaneous Material Selection and Geometry Design of Trusses
16	Siva Nagendra	2005-2006	Geometrically Nonlinear Elastic Analysis of Frames with Application to Vision-Based Force-Sensing and Mechanics of Plant Stems
17	M. Agrawal	2006-2007	On Including Manufacturing Constraints in the Topology Optimization of Micromachined Structures and Mechanisms
18	M. Rajesh	2006-2007	Mechanisms and Optics for Enahnced Stereo-Vision for Laparoscopic Surgery
19	Deepak Sahu	2007-2008	Micro-grippers for manipulation and force-estimation using spring steel
20	G. Bhargav	2007-2008	Compliant bicycle wheel
21	V. Mallikarjuna Rao	2008-2009	Haptic Interface for Micro and Nano Manipulation
22	Padmanabh Limaye	2008-2009	SMA-actuated Control Surfaces for Aircraft
23	Meenakshi Sundaram	2008-2009	Inverse Eigenmodeshape Problem
24	Pakeeruraju Podugu	2009-2010	Synthesis of shape-morphing compliant mechanisms
25	Subhajit Banerjee	2010-2011	Design and Simulation of an RF-MEMS switch
26	Nirmit Dave	2010-2011	Micromechanical frequency translator
27	Gaurav Nair	2011-2012	Dynamic Simulation and Design of RF-MEMS Switches made of Spring Steel
28	Rakesh Kumar Pathak	2011-2012	Simulations and Experiments in Punching Spring-steel Devices with sub-millimeter Features
29	Navaneet Krishna	2012-2013	Tensegrity Modeling of Biological Cells
30	P. Sandeep	2012-2013	Modeling meso-scale punching
31	Mohit Mathur	2013-2014	Mechanical advantage of compliant mechanisms
32	Shuvrangsu Das	2014-2015	Designing Anisotropy for Unusual Behaviour of Elastic Objects
33	Akshay Desai	2014-2015	A Compliant Mechanism for Applying Tension on Slender Objects
34	Vinit Kumar	2015-2016	Beam-based micro-speakers

35	Niharika Gupta	2016-2017	Optimal width and depth profiles for bistable arches
36	Sagar Bodkhe	2017-2018	Isogeometric analysis in structural optimization
37	Kshitij Wangade	2018-2020	Modeling of Composite Structures with non-periodic and specific arrangement of fibers
38	Gaurav Deshmukh	2019-2021	Topology Optimization of Two-solid and Two-fluid Heat Exchangers
39	Subhadeep Sahoo	2020-2022	Topology Optimization of Heterogeneous Non-uniform Lattice Structures for Additive Manufacturing
40	Shreyas Dixit	2021-2023	Study of mechanical advantage of compliant mechanisms and design of a compliant gripper with a high mechanical advantage over an extended range of workpiece stiffness
41	Sudarshan Ghotekar	2022-2024	Modelling and Design of Thermo-Elastic Damping in a MEMS Gyroscope
42	Anoop A	2022-2024	Non-dimensionalization of Static and Dynamic Responses of Compliant Mechanisms
43	Arya	2023-2025	Structural Optimization using Field-aligned Meshing in Finite Element Analysis
44	Kari Govardhan	2023-2025	Coarse-grain Modelling of Composites with Sparse Fiber in Specific Patterns
45	R. Viswanath	2024-2026	Biohybrid Gripper using Cell-based Actuation
46	Shiyam Sharma	2024-2026	Anisotropy in Optimization of Lattice Structures and Metamaterials

Project assistants at the Indian Institute of Science

Project assistants (2004-2025)	G. Balaji, Shantanu Chakravarthy, B. Manjunath, M. S. . Deepika, B. K. Deepthi, P. Dinesh, B. Pradeep, A. Singh, A. Alwan, M. Kulkarni, R. Ganesh, K. Girish, Siddharth Sanan, K. Manjunath, Vinod Kumar, Vedanandan, A. Ravi Kumar, Manoj Raj, Chetan Kumar, G. Ramu, Duely Rakshit, Vijay Prakash, G. Ramu, A. Sajeesh Kumar, M. S. Suma, Meenakshi Sundaram, Vishwaman Malaviya, R. Genesh, Krishna Pavan, B. Varun, Mukund Madhav Nath, Puneet Singh, Shilpa, Ashwin Rao, Gaurah Singh, Gautham Kumar, Gautham Baichapur, Nikhil Jorapur, Avinash Kumar, Kunal Patil, Aditya Nittala, Anirudh Katti, Darshan Sarojini, Ananya, Viswanath Meenkashi Sundaram, Adhiti Raman, Sarayu

Govind, Ramesh Sarangamath, Mayank Gupta, Ravi Kumar Thakur, Geetanjali, Chakravortty, Navaneet Krishna, Vikram Somanna, Mythra Varun, Nithish K., Hari Shankar R., Anoosha Pai, Shamanth Hampali, Saketh S., Dhananjay Yadav, Yash Agarwal, Siddesh Shenoy, Ashwin Ramesh, Rakesh N, S., Sharan Sharma, Alishan, Mihir Mogra, Rajesh Aouti, Akshay Kumar, Ankur Kushwaha, Praneet N. C. , Jyothi Sonawane, Prashant Kunjam, Surya Sai, Talha Faiz, Sachin Arya, Chaitanya Gaikwad, Prathith Shenoy, Nikila Nair, Bheeni Malagar, Kandula Eashwar Sai Kumar, Ahmad Sheik, Nikhil Muraleedhar, Gaurav Deodhare, Sudhanva Aathreya, Michael John Bosco, Rohit Narayan

Current: Michael John Bosco, Rohit Narayan

Undergraduates (outreach effort, as IISc does not have an undergraduate program in engineering)

2005: Two groups from Sidhaganga Institute of Technology, Tumkur; Project titles: (i) Micromechanical filter (ii) Micromachined pressure sensor

2006: One group from K. S. R. Institute of technology, Thiruchengode; Project title: A temperature controlled miniature chamber for polymerese chain reaction (PCR)

2007: Six summer interns from different colleges in India. Two students have published journal papers based on their work at IISc in two summers and winters.

2008: Five summer interns from different colleges in India. Two have written conference papers.

2009: Nine summer interns from different colleges in India. One has written a conference paper and one more a journal paper.

2010: Ten summer interns from different colleges in India.

2011: Six summer interns.

2012: Harshita Bhat and Himani

2013: Vishnu Swaroop, Bhaskar, Jagjeet Singh, Shubham Saini

2014: Four summer interns

2015: Five summer interns

2016: Six summer interns including Shubham Bora

2017: Vaibhav Agarwal, Rahul Choudhary, Abhinav Muraleedharan, Harsh Chauhan, and Aprana K.

2018: Mohit Sharma, Georgy Jacob, and Arun Palaniappan

2019: None

2020: None

2021: None

2022: Gaurav Deodhare

2023: Suhas Srinivasan

2024: Priya Jha, Archit Mundada and two Navodaya high school students

2025: 12 students taken from around the country to train in compliant mechanisms

Undergraduates at the University of Pennsylvania

2004: William Rivera (U. Puerto Rico)

2002: Sebastian Von Berg, Christopher Bremmer (Colarado School of Mines), Robert Jankura, Jamina Lee, John Manning, Daniel Marcus, Spencer Szczesny, and Brenda Trembath

2001: Ted Allen, Benjamin Benulis, Dane Carswell, Andrew Perrin, and Ryan Stovall

2000: Ravi Jain, Courtney Grow, Andrew Perrin, and Matt Robusto

1999: Wade Bennett, Ravi Jain, Yoonjung Jang, Dennis Kim, Charles Nappen, and Matt Robusto

1998: Chris Gahring, Ravi Jain, Yoonjung Jang, Dennis Kim, Sameer Mungur, and Rachman Yahya.

1997: Matt Julian, Ellen Long, Leo Medalla, Timothy Moulton, Scott Saltzman, and Kenrick Waithe.

Service in Committees

Indian Institute of Science

Editor-in-chief of the Journal of IISc (2018-present)

Member, IISc Branding Committee (2017-)

Chair, IISc Webpage Faculty Committee (2016-2018)

First Co-chair, Centre for BioSystems Science and Engineering (2015-present)

Chair, IIScPress Committee (2014-2016)

Coordinator, Interdisciplinary Programme in Bioengineering, IISc (2012-2015)

Senate Curriculum Committee (2010-2013)

Centenary Conference Publications Sub-committee (2008-2009)

Institute Advertising Committee (2008-2010)

Convener, IIScPress Committee (2008-2014)

Archives and Publications Committee (2008-present)

Core committee of the Center for Nanoelectronics and Nanoengineering (2006-2010)

Senate Library Committee (2004-2005)

DCC-Mechanical Engineering, IISc (2006-2011)

Editorial Committee of the Journal of the IISc (2007-present)

University of Pennsylvania

MEAM Graduate Group Chair (July 2001 – July 2004)

Academic Performance Committee, School of Engineering and Applied Science (1999-2001).

School of Engineering and Applied Science Library Committee (1998-1999).

Coordinated the creation of a new website for the Mechanical Engineering and Applied Mechanics department at the University of Pennsylvania.

Journal Editorial Boards

Indian

1. Editor-in-chief, Journal of IISc, a Multidisciplinary Reviews Journal, IIScPress and Spinger (2018-present)
2. Associate Editor, *Journal of ISSS*, Institute of Smart Structures and Systems (2012-2016)
3. Editorial Board, *Sadhana*, Indian Academy of Science. (2012-2013).
4. Associate Editor, *Resonance*, A Science Education Journal of the Indian National Academy of Science, Bangalore. (2012-2014).
5. Editorial Board, *Journal of the Institution of Engineers (India): Series C* (2012-present).
6. Editorial Board, *Current Science*, Indian National Science Academy, Bangalore. (2008-2012).
7. Editorial Board, *Resonance*, A Science Education Journal of the Indian National Academy of Science, Bangalore. (2008-2012).
8. Editorial Board, *The Journal of the Indian Institute of Science: A Multi-disciplinary Reviews Journal* published by the IISc Press. (2007-present)
9. Guest Editor, *The Journal of the Indian Institute of Science–A Multidisciplinary Reviews Journal*, Jan.-Mar., 2007 and Jul.-Sep., 2007.
10. Founding Editor, *Sūkshma*, the quarterly newsletter of the Institute of Smart Structures and Systems (ISSS) about the micro and smart systems activities in India, (2006-2013).

International

11. Associate Editor, Wearable Technologies, Cambridge University Press, (2019-present)
12. Associate Editor, ASME *Journal of Mechanisms and Robotics*. (2008-2011)
13. Associate Editor, *Mechanics Based Design of Structures and Machines*, Taylor and Francis, Inc. (2006-2013).
14. Associate Editor, *Robotica*, international journal published by Oxford University Press (2006-2012).
15. Editorial Board, International Journal of Structural Changes in Solids, Serial Publications (2008-2011)
16. Associate Editor, *Journal of Mechanical Design, Transactions of the ASME* (2003-2006).
17. Guest Editor, ASME *Journal of Mechanical Design*, July 2005, 127(4), "Special Issue on Mechanical Design in Nano, Micro, and Biogically Oriented Systems."

Membership and activities in Professional Societies

Vice President, Association of Mechanisms and Machines (AMM) (2017—2020)

President, Institute of Smart Structures and Systems (ISSS) (2019-present; Vice President 2018-2019)

Chair, Technical Committee on Micromachines, International Federation for the Theory of Machines and Mechanisms (IFToMM) (2009-2013).

Executive Council member, Institute for Smart Structures and Systems (ISSS) (2007-present)

Chair, Awards Sub-committee of the Micro and Nao Systems Committee of the ASME (2007)

Member, ASME Micro and Nano Systems Committee (2005-Present).

Chair, Technical subcommittee on MEMS in the Design division of ASME (2003-2006).

Member of the ASME Mechanisms Committee of the Design Engineering Division (2001-2006), Treasurer (2002-2005).

Membership

- American Society of Mechanical Engineers (ASME)
- International Society for Structural and Multidisciplinary Optimization (ISSMO)
- Institute of Electrical and Electronics Engineers (IEEE)
- Institute for Smart Structures and Systems (ISSS), India
- Association of Mechanisms and Machines (AMM), India

Other Professional Activities

Conference Chair, 1st international and 7th National Conference on Multidisciplinary Design, Analysis, and Optimization (iNCMDAO-2024), Bengaluru, Dec. 16-18, 2024.

Conference Chair, ISSS International Conference on Micro, Nano, and Smart Systems (IC-MNSS 2024), July 9-12, 2024.

Conference Chair, Asian Mechanisms and Machine Science Conference, Asian MMS 2018, Dec. 17-19, 2018, held in Bengaluru, India.

Conference co-chair, IFoToMM Workshop on Micromechanisms and Micoactuators, Jan. 20-21, 2012, held in Durgapur, West Bengal, India.

Conference co-chair, IFoToMM Workshop on Micromechanisms and Micoactuators, May 27-28, 2010, held in Aachen, Germany.

Secretary, Conference Committee, ISSS 2008 Conference on Smart Structures, Systems, Materials and MEMS, Bangalore, July 2008.

Program Committee Co-Chair, National Conference on Mechanisms and Machines, 2007, Bangalore.

Coordinator for writing a textbook on Micro and Smart Systems Technologies for Vishveswaraiah Technological University.

Co-organizer, Micro and Smart Systems Workshop for training teachers of Vishvewaraiah Technology University for developing an undergraduate course in this area. January-March 2006.

Technical Program Committee: Chair for International Participation, ASME 2006 International Design Engineering technical Conference, Philadelphia, September, 2006.

Symposium Chair at the 2000 ASME Design Engineering Technical Conferences for "Micro and

Nano-scale Mechanisms and Systems" as part of the 27th Biennial Mechanisms and Robotics Conference, Montreal, Canada, Sep. 28th-Oct. 2nd.

Technical Program Committee, 2002 ASME Biennial Mechanisms Conference held as part of International Design Engineering Technical Conferences, September 2002, Montreal, Canada.

Invited participant at the National Science Foundation Workshop on "Manufacturing and MEMS," Orlando, FL, Nov. 7, 2000.

Invited participant at the National Science Foundation Workshop on "Next Generation Human-Assist Devices," Baltimore, MD, Sep. 14, 2000.

Tutorial entitled "MEMS from a Mechanical Engineering Perspective," at the 2000 and 2002 ASME Design Engineering Technical Conferences.

Chair, Student Mechanism Design Competitions, 2000 ASME Design Engineering Technical Conferences.

Special Session Organizer at the 2000 ASME Design Engineering Technical Conferences. Special session on the "Manipulation at Micro Scale using MEMS" as part of the 26th Biennial Mechanisms Conference.

Special Session Organizer at the 1998 ASME Design Engineering Technical Conferences. Special session on the "Mechanical Design Issues in MEMS" as part of the 25th Biennial Mechanisms Conference.

Member of the ad-hoc committee of the Mechanisms Division of the ASME appointed to explore the future directions for research in the mechanisms area (1997-98).

Invited participant at the National Science Foundation Workshop on "Structured Design for MEMS," CalTech, Pasadena, February, 1996.

Patents, technology transfer, and commercialization

S. No.	Title of the invention	Inventors	Details	Status
1	Method for heart valve implantation	Howard C. Herrmann, Nilesh Mankame, Suresh G. K. Ananthasuresh	21/07/2003, Foreign, US-8118866-B2	Granted; commercialized as Endovalve.
2	A device for simulating endoscopy and a system thereof	Shanthanu CHAKRAVARTHY, Ashwin Mairpady RAO, Gondi Kondaiah Ananthasuresh	11/07/2014, Foreign, WO-2016005959-A1	Granted; commercialized as Endomimyk by Mimyk.
3	A Compliant mechanism for simulating endoscopy	Anirudh Katti, Shanthanu Chakravarthy, Gondi Kondaiah Ananthasuresh	01/02/2017, Foreign, US-12106679-B2	Granted; commercialized as Endomymyk by Mimyk.
4	A device and method for enhanced poration of biological cells	Rahul Singh KOTESA, G.K. Ananthasuresh, Siddharth JHUNJHUNWALA, Prosenjit Sen	30/07/2018, Foreign, WO-2020026047-A1	Granted
5	MEMS latching high power switch	James M. Slicker, Gondi Kondaiah Ananthasuresh	11/04/2007, Foreign, US-7893799-B1	Granted
6	Microturbomachinery	Alan H. Epstein,	16/07/1996,	Granted

		Stephen D. Senturia, Ian A. Waitz, Jeffrey H. Lang, Stuart A. Jacobson, Fredric F. Ehrich, Martin A. Schmidt, G. K. Ananthasuresh, Mark S. Spearing, Kenneth S. Breuer, Steven F. Nagle	Foreign, US-6392313-B1	
7	A variable torque hinge mechanism	Shamanth Hampali, Anoosha PAI. S, Ananthasuresh G. K., Hari K. V. S, Dibakar Sen	14/12/2017, Foreign WO-2019116340-A1	Granted; commercialized as StandAtEaze Chair by Translead Med Tech Pvt. Ltd.
8	MEMS switch with bistable element having straight beam components	James Slicker, Ananthakrishnan Surianarayanan, G K Ananthasuresh	03/09/2003, Foreign, US-2007188846-A1	Granted
9	Circuit breaker with multi-port bistable element	Gondi Kondaiah Ananthasuresh, Pradeep Kumar RAMKUMAR, Ramesh SARANGAMANTH, Hari Prasad KONKA, Naresh Kumar Kodela, Fiaz SHAIK	22/10/2016, Foreign, WO-2018073020-A1	Granted
10	Minute electromechanical actuation and fluid control devices and integrated systems based on low temperature co-fired ceramic (ltcc) tape technology	Haim H. Bau, Jorge J. Santiago-Aviles, Moon Kim, Suresh G. K. Ananthasuresh, Mario Gongora-Rubio, Heather Lynch	12/11/1999, Foreign, WO-0135484-A1	Granted
11	System and process for additive fabrication and manufacturing	Vivek Khatua, Gondi Kondaiah Ananthasuresh, Balan Gurumurthy	23/12/2022, Foreign, WO-2024134666-A1	In process
12	Dynamic pressure offloading insoles	Priyabrata Maharana, Jyoti Shivaji Sonawane, Ahmad Rehan Shaikh, Chinmayee Prasad Curpod, Nikhil Muralidhar,	Indian patent 485580; granted on 19-12-2023; filed on 26/04/2023; Application number:	Granted; commercialized by StrideAide.

		Gondi Kondaiah Ananthasuresh, Pavan Belehalli	202341030145; Foreign 2024224348-A1 (in process)	
13	A customizable and responsive mechanism for sts (sit-to-stand) and bts (back-to-sit) assistance	Sanchit Jhunjhunwala, Manoj Kumar RAJANNA, Chandrashekhara K L, Sanjay PATIL S, Kiran J, Ananthasuresh G.K.	21/08/2023, Foreign, WO-2025041167-A1	Granted; commercialized as StandAtEaze chair by Translead Med Tech Pvt. Ltd.
14	MÃ©canisme personnalisable et rÃ©actif pour assistance sts (position assise Ã position debout) et bts (retour Ã position assise)	Sanchit Jhunjhunwala, Manoj Kumar RAJANNA, Chandrashekhara K L, Sanjay PATIL S, Kiran J, Ananthasuresh G.K.	21/08/2023, Foreign, WO-2025041167-A1	Granted; commercialized as StandAtEaze chair by Translead Med Tech Pvt. Ltd.
15	A Method For Recognizing Gestures Using An Accelerometer Mounted Onto A Wearable Device	Gondi Kondaiah Ananthasuresh	10/12/2013, India, 325145	Granted
16	pH sensor with solid electrodes	Jose Joseph, Nikila Nair, Akshya, and Gondi Kondaiah Ananthasuresh	08/12/2022, India, 525781	Granted
17	A Variable Torque Hinge Mechanism	Priyabrat Maharana, Jyoti Sonawane, and Gondi Kondaiah Ananthasuresh	14/12/2017, India, 444727	Granted; commercialized as StandAtEaze chair by Translead Med Tech Pvt. Ltd.
18	A Haptic Device for Endoscopy	Shanthanu Chakravarthu, Ashwin M. Rao, and Gondi Kondaiah Ananthasuresh	11/07/2015, India, 387724	Granted; commercialized as Endomimyk by Mimyk.
19	ARTICLE HOLDER	G. Ramu and Gondi Kondaiah Ananthasuresh	19/03/2010, India, 290077	Granted; ceased
20	NON-PNEUMATIC TYRE	G. Bhargav and Gondi Kondaiah Ananthasuresh	11/09/2009, India, 318295	Granted; ceased
21	Compliant Platforms to Generate Amplified Displacements, Compliant Platform for	Girish Krishan and Gondi Kondaiah Ananthasuresh	08/05/2008, India, 273354	Granted

	Sensing Applied Motion And Method Of Designing DaCM			
22	Design Encodes 4D Printing of Plastics for Programmable Shape Changes	Saswat Choudhury, Akshat Joshi, Vageesh Baghel, G. K. Ananthasuresh, and Kaushik Chatterjee	Indian patent 566833; Granted on 28-5-2025; Application (202341050865) filed on 28-7-2023.	Granted
23	ADDITIVE MANUFACTURING METHOD, SYSTEM AND STRUCTURE	Saswat Choudhury, Vageesh Baghel, G. K. Ananthasuresh, and Kaushik Chatterjee	Indian patent 567231 ; Granted on ; Application (202241049516) filed on 30-8-2022.	Granted

Sponsored Research

Indian Institute of Science

(Rs. 1 lakh = Rs. 100,000 ; Rs. 1 crore = Rs. 100 lakhs = Rs. 1,00,00,000 = Rs. 10 million)

1. Principal Investigator, "Design and fabrication of Disk Resonator Gyroscope and Accelerometer," ISRO Inertial Systems Unit (IISU), 2021-24, Rs. 49 lakhs.
2. Principal Investigator, "Development of a Miniature Pump using Snapping Arches and Shells: Phase 2," Toyota, 2021-22, Rs. 13 lakhs
3. Principal Investigator, "Development of a Miniature Pump using Snapping Arches and Shells: Phase 1," Toyota, 2020-21, Rs. 26 lakhs
4. Principal Investigator, Topology Optimization of Heat Transfer Components (with Pramod Kumar), 2019-2021, Rs. 157 lakhs.
5. Principal Investigator, Multi-Disciplinary Optimization in Additive Manufacturing, Uchchatar Avishkar Yojana (UAY), General Electric-India, 2019-2021, Rs. 99.05 lakhs.
6. Principal Investigator, Optimal Lattice Topologies with Hierarchy and Heterogeneity for Additively Manufactured Enclosures in Aerospace and Automotive Components, Uchchatar Avishkar Yojana (UAY), Eaton-India, 2019-2021, Rs. 161.33 lakhs
7. Principal Investigator, Topology Optimization and Robust Design of Composite Structures: Phase 2, Siemens, 2020, Rs. 19.15 lakhs.
8. Principal Investigator, INAE-SERB Abdul Kalam Technology Innovation fellowship, 2018-2023, INR 75 lakhs.
9. Principal Investigator, "Bioengineering and Biodesign at IISc: Phase 2", Department of Biotechnology, INR 9.61 crores, 2018-2021.
10. Co-principal investigator, "Soil-moisture and pH sensors," Ministry of Electronics and Information Technology, INR 90 lakhs (2018-2022).

11. Principal Investigator, "Analysis of Unfurlable Antenna Mechanism," LEDE-DRDO, INR 9.91 lakhs, 2018.
12. Principal Investigator, "Self-offloading Diabetic Footwear," Rajiv Gandhi University of Health Sciences, INR 12.24 lakhs, 2018-2019.
13. Principal Investigator, "Compliant electromechanical Switch," ABB, INR 30 lakhs in three phases, 2018-2019.
14. Principal Investigator, "Topology Optimization for Parts to be Manufactured using Additive Manufacturing: Phase 1," Siemens, INR 46 lakhs, 2018-2019.
15. Principal Investigator, "CyberGut; A Bio Cyber Physical Approach to Gut Epithelial Cell Biology," Robert Bosch Centre for Cyber Physical Systems, IISc, Rs. 135 lakhs, 2016-2019.
16. Principal Investigator, "Mechanical Design and Microfabrication of Electro-thermally Actuated Compliant Bistable RF MEMS Switches," Space Technology Cell, IISc, Rs. 15.73 lakhs, 2016-2019.
17. Principal Investigator, "Compliant Easy Chair for the Elderly," DST-Technology Initiative for the Disabled and Elderly," 2014-2017, Rs. 47 lakhs.
18. Principal Investigator, "Miniature Circuit Breakers," EATON-India, Pune, 2014-2016; Phase 1: Rs. 5 lakhs; Phase 2: Rs. 14 lakhs; Phase 3: Rs. 6 lakhs.
19. Principal Investigator, "A Pilot Project to Study the Forces of Adhesion in Corneocytes using Miniature Compliant Tools," L'Oreal, 2015, Rs. 7.5 lakhs.
20. Investigator for a Project, "Soil-moisture sensor", DEITy, 2012-2017, A multi-investigator project that has 10 major projects, Rs. 50 crores.
21. Co-investigator, "Cyber Surgery", Robert Bosch Centre for Cyber Physical Systems, IISc, 2012-2014, Rs. 4.08 crores. (PI: Ashitava Ghosal)
22. Principal Investigator, "A Miniature Electromagnet-actuated Plastic Pump," National Programme on Micro and Smart Systems (NPMASS), 2012-2014, Rs. 76.2565 lakhs.
23. Principal Investigator, "Bioengineering and Biodesign Initiative", Department of Biotechnology (DBT), (2012-2016), Rs. 14.30 crores.
24. Principal Investigator, "Microfabrication and Packaging of High-resolution Accelerometers", Space technology Cell, IISc-Bangalore, 2010-2012, Rs.10.4 lakhs.
25. Principal Investigator, "Fabrication of a High-bandwidth Micromachined Accelerometer," Naval Physical and Oceanographic Laboratory, Kochi, 2010-2011, Rs. 4.1 lakhs.
26. Principal Investigator, "Software Development and Scientific Computing in Nanoengineering," National Programme on Micro and Smart Systems (NPMASS), 2009-2013, Rs. 4.11 crores.
27. Principal Investigator, "A Microsensor for Intra-cranial Pressure Monitoring", Society for Biomedical Technology, DEBEL, Bangalore, 2008-2011, Rs. 38 lakhs and Rs. 20 lakhs equipment facilitation.
28. Principal Investigator, "Design and Simulation of a Three-axis High-bandwidth Micromachined Accelrometer," Naval Physical and Oceanographic Laboratory, Kochi, 2008-2009, Rs. 9 lakhs.
29. Principal Investigator, "A Feasibility Study on using Shape Memory Alloy Actuation for the Leading Edge Vortex Control in Aircraft," DISMAS program with Aeronautical Development Agency, Bangalore, 2007-08, Rs. 16 lakhs.

30. Co-Principal Investigator, Math-Biology Initiative, Department of Science and Technology, 2007-2012, Rs. ~2 crores.
31. Principal Investigator, "Micromechanical Amplifiers for Inertial Sensors and Signal Processors," UK-India Education and Research Initiative (UKIERI) grant, 2007-2011, 37,800 British Pounds ~ Rs. 30 lakhs.
32. Principal Investigator, "Bio-micromanipulation and Protein Design by Linking Mechanics and Biology," Swarnajayanthi Fellowship Award, Department of Science and Technology, 2007-2012, Rs. 1.1 crores.
33. Co-Principal Investigator, "Micromachined and Compliant Tools for Enhancing Minimally Invasive Surgical Tools," Society for Biomedical Technology, Bangalore, 2006-2009, 38 lakhs.
34. Principal Investigator, "A setup for Mechanical Characterization and Testing of Micro Devices," Research and Development Establishment (Engineers), Pune, 2006-2008, 43 lakhs.
35. Joint Investigator, (PI: Prof. Anurag Kumar, ECE) "Wireless Sensor Networks," Centre for Robotics and Artificial Intelligence/DRDO, 2006-2009, Rs. 2.97 crores.
36. Co-principal Investigator, "Fostering National MEMS Design Satellite Centers for NITs," NPSM, 2005-2006, Rs. 68 lakhs.
37. Principal Investigator, "Miniature Compliant Bistable Valve," IMI Inc., UK, 2004-2006, Rs. 20 lakhs in two phases.
38. Principal Investigator, "Development of an Automated Pipe-Crawling Device," BRNS, 2005-2006, Rs. 11 lakhs.
39. Principal Investigator, "Compliant One-piece Pump," Thomas Industries, USA, 2004-2005, Rs. 6 lakhs.
40. Principal Investigator, "Design and Microfabrication of a High-Resolution Accelerometer for Spacecraft Applications," Space technology Cell, ISRO-IISc, 2005-2006, Rs. 10 lakhs.
41. Principal Investigator, "Magnetically Actuated Miniature Polymer Pump," National Program on Smart Materials, Rs. 13.94 lakhs, 2005-2006.

University of Pennsylvania

1. Principal Investigator, "Contact-Aided Compliant Mechanisms to Generate Sophisticated Motions," National Science Foundation, $327,581 from September 2002 – August 2005.

2. Principal Investigator, "Integrated Synthesis of Mechanical Systems with Unconventional Actuations," National Science Foundation CAREER award, $200,000 for 4 years from 1998 Sep. - 2002 Aug. Additionally, $10,000 equipment grant, $16,425 + $25,000 industrial funding matching grant, and Research Experience for Undergraduate (REU) grants. Total: $298,425.

3. Principal Investigator, "Optimal Mechanical Design by Juxtaposition of Rigidity and Compliance," National Science Foundation, $189,409 from August 1998 – July 2001. Additionally, $11,000 REU grants. (No-cost extension until 2002)

4. Principal Investigator, "Part to Art: A Comprehensive Geometric Modeling Paradigm for Design of MEMS," National Science Foundation, $216,719 from May 1999 – April 2002. Additionally, $11,000 REU

grants.

5. Principal Investigator, “Vision-Based Mechanical Manipulation and Force Measurement on Single Cells,” University of Pennsylvania Research Foundation, $20,000, Feb. 2001 to Feb. 2002. (with Dr. Ostrowski)

6. Principal Investigator, “Micromanipulation System with Haptic and Teleimmersive environment: A feasibility Study,” Nanotechnology Institute, Ben Franklin Technology Partners, $30,000, Sep. 2001-Aug. 2002. (with Drs. Daniilidis, Kumar, and Ostrowski)

7. Principal Investigator, “Foundations of Synthesis for MEMS”, Defense Advanced Research Projects Agency by way of a subcontract from Carnegie Mellon University, $310,000 for 3 years from 1996 Sep.-1999 Dec.

8. Principal Investigator, “Re-designing the Micro Ring Gyroscope for Desired Mode Shapes,” Delphi/Delco Electronics, Kokoma, Indiana, $16,425 from January 1999 – May 1999.

9. Principal Investigator, “Flexible, flexible Fixtures,” Society of Manufacturing Engineering (SME) Education Foundation, $10,000 from July 1998 to July 1999.

10. Principal Investigator, "Taking MEMS Technology to High Schools to Inspire and to Teach Basic Engineering Skills," W.K. Kellogg Foundation summer course development program, $2,984 from May 1999 - August 1999.

11. Co-Principal Investigator, "Design and Rapid Prototyping of Customized Micro & Macro Compliant Mechanisms," National Science Foundation, $318,686 for 3 years from 1997 Aug. - 1998 July. (with Drs. Bajcsy, Kumar, and Ostrowski)

12. Co-Principal Investigator, “Feasibility Studies on Electro-Thermal-Compliant Wheel for Miniature Spacecraft Applications,” Pathway Technologies, Inc., $51,000 for 1 year from 2000 May – 2001 April. (with Dr. Ayyaswamy).

13. Co-Principal Investigator, "Integrated Microfluidic Systems for Molecular Processing Fabricated in Ceramic Tapes," Defense Advanced Research Projects Agency, $1,332,155, 1997 Aug. - 2000 Aug. (with Drs. Bau, Hu, and Santiago).

Publications

Journal articles

Published/Accepted

J1. Ananthasuresh, G.K. and Kramer, S.N., “Kinematic Synthesis and Analysis of the Rack and Pinion Multi-purpose Mechanism”, *Journal of Mechanical Design, Trans. ASME*, Vol. 114, Sep. 1992, pp. 428-432.

J2. Ananthasuresh, G.K. and Kramer, S.N., “Analysis and Optimal Synthesis of the RSCR Spatial

Mechanism", *Journal of Mechanical Design, Trans. ASME*, Vol. 116, No. 1, March 1994, pp. 174-181.

J3. Kota, S., Ananthasuresh, G.K., Crary, S.B. and Wise, K.D., "Design and Fabrication of Microelectromechanical Systems," *Journal of Mechanical Design, Trans. ASME*, Vol. 116, No. 4, March 1994, pp. 1081-1088.

J4. Ananthasuresh, G.K. and Kota, S., "Designing Compliant Mechanisms," *Mechanical Engineering*, Vol. 117, No. 11, November, 1995, pp. 93-96.

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B3. Sen, D., Mohan, S., and Ananthasuresh, G. K., Mechanism and Machine Science, Select Proceedings of Asian MMS 2018, Springer 2020.

B4. Lovasz, E.-W., Anandthasuresh, G. K., Corves, B., and Petuya, V., (ed.) Microactuators and Micromechanisms, Springer, 2014.

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B1. Kota, S., Ananthasuresh, G.K., Soni, A.H., (contributed to Chapter 3), "Type Synthesis and Creative Design" for a text entitled "Modern Kinematics: Developments in the Last Forty years," Edited by Arthur G. Erdman, Wiley-Interscience Series in Design Engineering, John Wiley & Sons, Inc., 1993, pp. 27-74.

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B3. Ananthasuresh, G.K., "Cams in Microelectromechanical Systems," Chapter 15 in *Cam Design Handbook* by H. Rothbart, McGraw-Hill, 2003, pp. 505-527.

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C2. Ananthasuresh, G. K., "Mechanical Characterization and Design in Biological Systems: from Single Cells to Proteins," International Conference on Smart Materials, Structures, and Systems, July 28-

30, 2005, Bangalore, India, Vol. 1, paper SD-02.

C3. Ananthasuresh, G.K., "Topology Optimization of Microsystems Devices Including Micromachining Constraints," 10th International Conference on Advanced Materials, 8-13 October, 2007, Bangalore.

C4. Reddy, A.N., Hegde, S., and Ananthasuresh, G.K., "Mechanical Characterization of Micron Sized Objects using Vision-Based Sensing and Inverse Problem Solution Procedures," International Conference on Multiscale Modelling and Simulation, Jan. 2-4, 2008, Bangalore.

C5. Ananthasuresh, G.K., "Mechanics-based Topology Optimization of Manufacturable Microsystems," International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on Multifunctional Material Structures and Systems, Bangalore, India, Dec. 10-12, 2008.

C6. Dinesh, M. and Annathasuresh, G.K., "Micromachined Two-axis Compliant Platforms," International Conference on Microelectromechanical Systems, Chennai, India., January 3-6, 2009.

C7. Ananthasuresh, G.K., "Fabrication with Metals and Polymers in Bio-micromanipulation and Microfluidic Applications," Indo-US Workshop on Microfluidics and Fabrionics, Kharagpur, India, January 9-11, 2009.

Reviewed conference proceedings (full papers)

C8. Khatua, V., Gurumoorthy, B., and Ananthasuresh, G. K., "An automated vat photopolymerization process for composite parts with multiple spatially steered continuous fibers using a solenoid array grid," Solid Freedom Fabrication (SFF) Symposium, Aug. 11-14, 2024, Austin, TX, Paper 1406.

C9. Khatua, V., Gurumoorthy, B., and Ananthasuresh, G. K. "3D-Printing by Patterning and Advancing a Liquid Photo-Polymer Film," Solid Freedom Fabrication (SFF) Symposium, Aug. 11-14, 2024, Austin, TX, Paper 1414.

C10. Sanchit Jhunjhunwala, Manoj Kumar R., Chandrashekhara K. L., Sanjy Patil, Kiran J., Ahmad Sheikh, and G. K. Ananthasuresh, "A CUSTOMIZABLE AND RESPONSIVE MECHANISM FOR A CHAIR TO ASSIST DURING ALL PHASES OF STAND-TO-SIT AND SIT-TO-STAND MANEUVERS," Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC/CIE2023) August 20-23, 2023, Boston, Massachusetts. DETC2023-117037.

C11. Priyabrat Maharana and G. K. Ananthasuresh, "DYNAMIC OFFLOADING AND SELECTIVE REDISTRIBUTION OF PLANTAR PRESSURE USING CONNECTED SHALLOW ARCHES," Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC/CIE2023) August 20-23, 2023, Boston, Massachusetts.

C12. Priyabrat Maharana, Sudhanshu Shekhar, and G. K. Ananthasuresh, "MECHANICAL LOGIC GATES AND PROCESSORS USING HINGE-CONNECTED PINNED-PINNED ARCHES", Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC/CIE2023) August 20-23, 2023, Boston, Massachusetts. DETC2023-116440. IDETC2023-113272

C13. Shreyas Dixit and G. K. Ananthasuresh, "REVISITING MECHANICAL ADVANTAGE OF

COMPLIANT MECHANISMS: A CASE-STUDY OF A COMPLIANT GRIPPER USING THE SPRING-LEVER MODEL," Proceedings of the ASME 2023 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC/CIE2023) August 20-23, 2023, Boston, Massachusetts.

C14. Khatua, V., Gurumoorthy, B., and Ananthasuresh, G. K., "Robot-aided selective embedding of a spatially steered fiber in polymer composite parts made using vat photopolymerization," Solid Freedom Fabrication (SFF) Symposium, Aug. 13-16, 2023, Austin, TX.

C15. IPROMM 2022 - Michael

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C17. Bhat, S., and Ananthasuresh, G. K., "Control of multiple ferro-bots for steady motion using an array of electromagnets", Proc. the 4th International and 19th National Conference on Machines and Mechanisms, 9-11 Dec., 2021, Jabalpur, Paper no. 116. **Recognized with the best paper award.**

C18. Maharana, P., and Ananthasuresh, G. K., "Analysis of Connected Shallow Arches under a Load from a Moving Rigid Wedge", Proc. the 4th International and 19th National Conference on Machines and Mechanisms, 9-11 Dec., 2021, Jabalpur, Paper No. 111.

C19. Kushwaha, A., Agrawal, Y., Khandai, S., Hari, K. V. S., and Ananthasuresh, G. K., "An Assistive Chair using a Series-Elastic Actuator", Proc. the 4th International and 19th National Conference on Machines and Mechanisms, 5-7 Dec., 2019, Mandi, HP, India, Paper No. 159.

C20. Shenoy, S. D., Ramaswamy, H., and Ananthasuresh, G. K., "Surface-profile Accuracy of Deployable Mesh Reflectors based on focal Offset", Proc. the 4th International and 19th National Conference on Machines and Mechanisms, 5-7 Dec., 2019, Mandi, HP, India, Paper No. 166. (**Recognized with the best student paper award**)

C21. Mogra, M., Aouti, R., Rakesh, N. S., Ahmed, A., Ashwin, R., Joseph, J., and Ananthasuresh, G. K., "Analysis of Soil-moisture Sensor for Potential Failure Modes and Mass-manufacturing", Proc. the 4th International and 19th National Conference on Machines and Mechanisms, 5-7 Dec., 2019, Mandi, HP, India, Paper No. 147.

C22. Yadav, D. and Ananthasuresh, G. K., "Modelling of an Initially-retracting Electrothermal Microactuator," IFToMM World Congress on Mechanisms and Machines, June 30 - July 4th, 2019, Krakow, Poland.

C23. Maharana, P., Sonawane, J., Belehalli, P., and Ananthasuresh, G. K., "Analysis of Planar Bistable and Snap-through Arches for Contact and Dynamic Loads," Paper 46, 15th IFToMM World Congress on Mechanisms and Machines, June 30 - July 4th, 2019, Krakow, Poland.

C24. Chakravartula, P. N., Shekhar, S., and Ananthasuresh, G. K., "Attachment, Detachment, and Navigation of Small Robots using Local Magnetic Fields," International Conference on Micromanipulation, Automation, and Robotics at Small Scales, July 1-5, 2019, Helsinki, Finland.

C25. Yadav, D. and Ananthasuresh, G. K., "A Novel Intially-retracting Electrothermal Microactuator," 5th Asian Mechanism and Machine Science Conference, Dec. 17-19, 2018. Bengaluru, Paper. 84.

C26. Balakuntala, V. S. M., Palathingal, S., and Ananthasuresh, G. K., "A Passive Universal Grasping Mechanism based on an Everting Shell," 5th Asian Mechanism and Machine Science Conference, Dec. 17-19, 2018. Bengaluru, Paper. 94. **(Recognized with the best paper award)**

C27. Banik, D., Palathingal, S., Ananthasuresh, G. K., and Ghosh, A., "A Mechanical OR Gate using Pinned-pinned Bistable Arches," 5th Asian Mechanism and Machine Science Conference, Dec. 17-19, 2018. Bengaluru, Paper. 111.

C28. Bodkhe, S. and Ananthasuresh, G. K., "Multi-patch Isogeometric Analysis of Planar Compliant Mechanisms," 5th Asian Mechanism and Machine Science Conference, Dec. 17-19, 2018. Bengaluru, Paper. 111.

C29. Hampali, S., Pai, A., and Ananthasuresh, G. K., "An Open-section Shell Designed for Customized Bending and twisting to Ease Sitting and Rising in a Chair," 3rd International and 18th national Conference on Machines and Mechanisms," Dec. 13-15, 2017, Mumbai, Paper 80.

C30. Bharadwaj, K. K. S., Ramesh, T., and Ananthasuresh, G. K., "Non-dimensionalized Feasibility Maps for Designing Compliant Mechanisms," 3rd International and 18th national Conference on Machines and Mechanisms," Dec. 13-15, 2017, Mumbai, Paper 113.

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C32. Kollimada, S., Khan, S., Balakrishnan, S., Raju. S. R., Suma, M. S., and Ananthasuresh, G. K., "A Micro-mechanical Compliant Device for Individual Cell-stretching, Compression, and in-situ Force-measurement," Proc. International Conference on Manipulation, Automation, and Robotics at Small Scales," July 17-21, 2017, Montreal, Canada.

C33. Satya Murthy, N., Palathingal, S., Giridhar, M. S., and Ananthasuresh, G. K., "Design of a Two-terminal Bistable Micromachined Switch," Proc. ASME 2017 International Design Engineering Technical Conferences, IDETC 2017, Aug. 609, 2017, Cleveland, OH, USA, Paper no. DETC2017-68417. 9 pages.

C34. Mythra Varun, B. S., Chakravarthy, S., Shivashankar, N., Natarajan, V., and Ananthasuresh, G. K., "Development of a Simulation Endoscope for Virtual Endoscopy Training," Proc. ASME 2017 International Design Engineering Technical Conferences, IDETC 2017, Aug. 609, 2017, Cleveland, OH, USA, Paper no. DETC2017-68413. 8 pages.

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C36. Chattaraj, N., Ganguli, R., and Ananthasuresh, G. K., "A Distributed Compliant Mechanism for a Piezo-actuated Flapping Wing," 2nd International and 17th National Conference on Machines and Mechanisms, Kanpur, India, Dec. 16-18, 2015.

C37. Ananya, Chakravarthy, S., Kumar, S., and Ananthasuresh, G. K., "Shape Estimation of Endoscope and Prediction of Force Location during Endoscopy," 2nd International and 17th National Conference on Machines and Mechanisms, Kanpur, India, Dec. 16-18, 2015.

C38. Safvan, P., Darshan, S., Katti A. N., and Ananthasuresh, G. K., "Design of a Monolithic Compliant Bistable Mechanism by using Buckling Analysis of Straight Beam," 2nd International and 17th National Conference on Machines and Mechanisms, Kanpur, India, Dec. 16-18, 2015. **(Recognized with the Best Paper award)**

C39. Chakravorty, G., Ramnath Babu, T. J., Sunkara, P., Nath, U., and Ananthasuresh, G. K., "An Experimental Setup to Estimate the Grwoth-rate in a Leaf using Image Processing and the Inverse-Growth Problem," 2nd International and 17th National Conference on Machines and Mechanisms, Kanpur, India, Dec. 16-18, 2015.

C40. Darshan S., Lassche, T. J., Herder, J. L., and Ananthasuersh, G. K., "A Compliant Two-port Bistable Mechanism with Application to Easy-chair Design," 14th World Congress in Mechanism and Machine Science, Taipei, Taiwan, October 25-30, 2015. **(Recognized with the Best Application Paper award)**

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C42. Raman, A. and Ananthasuresh, G. K., "Improving a Dual-probe heat-pulse Based Soil-moisture Sensor using Insulated Nichrome Wire," 2nd International Symposium on Physics & Technology of Sensors, 8-10 March, 2015, Pune, India. Accessible on IEEE Explore.

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C44. Rinku, A. and Ananthasuresh, G. K., "Topology and Sixe Optimization of Modular Ribs in Aircraft Wings," 11th World Congress on Structural and Multidisciplinary Optimization, 7-12 June, 2015, Sydney, Australia.

C45. Roychowdhury, A., Patil, K. D., Nandy, A., Jog, C. S., Pratap, R., and Ananthasuresh, G. K., "Development of Microsystems Analysis (uSys) Software using Hybrid Finite Elements and Direct Solution of Coupled Equations," International Conference on Computational Mechanics (ICCM 2015), 14-17 July, 2015, Auckland, New Zealand. (**Recognized with the Best Paper award**)

C46. Chakravarthy, S., Rao, A. M., and Ananthasuresh, G. K., "A virtual reality Simulator for Upper Gastrointestinal Endoscopy," Proceedings of the Hamlyn Symposium on Medical Robotics, 12-15 July, 2014, London, UK, 2 pages.

C47. Singh, G. and Ananthasuresh, G. K., "Regulating Bearing Reactions in Spring-aided Static Balancing of Linkages under Constant Loads," Proceedings of the ASME International Design Engineering Technical Conferences, August 17-20, 2014, Buffalo, New York, USA. Pages 8.

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C49. Patil, K. D., Jog, C. S., Ananthasuresh, G. K., "Monolithic Hybrid Finite Element Strategy for

Coupled Structure-Electrostatic Analysis of Micromechanical Structures," ISSS International Conference on Smart Materials, Structures, and Systems, July 8-11, 2014, Bangalore, India, 6 pages.

C50. Bhargav, S. D. B., Jorapur, N., and Ananthasuresh, G. K., "Evaluating Bulk Stiffness of MCF-7 Cells using Micro-scale Composite Compliant Mechanisms," Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNacoMM 2013), IIT-Roorkee, India, Dec. 18-20, 2013, Paper no. 26. **Recognized with the best student paper award.**

C51. Chakravarthy S., Avinash, K, Ramu, G., and Ananthasuresh, G. K., "Design of an Endoscopic Haptic Display System using an Integrated Ring-actuator," Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNacoMM 2013), IIT-Roorkee, India, Dec. 18-20, 2013, Paper No. 101.

C52. Singh, G. and Ananthasuresh, G. K., "Minimization of Preload in Springs used in Static Balancing of Linkages under Constant Loads," Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNacoMM 2013), IIT-Roorkee, India, Dec. 18-20, 2013, Paper no. 37.

C53. Navaneet Krishna, R. P. and Ananthasuresh, G. K., "Towards Synthesis of Tensegrity Structures of Desired Shapes," Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNacoMM 2013), IIT-Roorkee, India, Dec. 18-20, 2013, Paper no. 115.

C54. Gautham Kumar, R. and Ananthasuresh, G. K., "A Study of Mechanical Advantage in Compliant Mechanisms", Proceedings of the 1st International and 16th National Conference on Machines and Mechanisms (iNacoMM 2013), IIT-Roorkee, India, Dec. 18-20, 2013, Paper no. 84.

C55. Bhargav, S. D. B., Varma, H. I., and Ananthasuresh, G. K., "Non-dimensional Kinetoelastostatic Maps for Compliant Mechanisms," Proc. ASME 2013 International Design Engineering Technical Conferences, August 4-7, 2013, Portland, Oregon, USA, Paper no. DETC2013-12178.

C56. Bhargav, S. D. B., Singh, G., and Ananthasuresh, G. K., "Composite and Multi-scale Compliant Mechanisms for Manipulation and Mechanical Characterization," Proc. ASME 2013 International Design Engineering Technical Conferences, August 4-7, 2013, Portland, Oregon, USA, Paper no. DETC2013-12179.

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