

Carmel S. Majidi

Clarence H. Adamson Associate Professor
Mechanical Engineering • Carnegie Mellon University
cmajidi@andrew.cmu.edu • (412)268-2492

Education

Degree	Discipline	University	Date
B.S.	Civil & Environmental Engineering	Cornell	2001
M.S.	Electrical Engineering & Computer Sciences	UC Berkeley	2004
Ph.D.	Electrical Engineering & Computer Sciences	UC Berkeley	2007

Faculty Appointments

July 2020 –

Full Professor, Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania.

August 2015 – June 2020

Associate Professor, Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania.

August 2011 – July 2015

Assistant Professor, Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania.

Former Positions

January 2009 – July 2011

Postdoctoral Fellow, Harvard Microrobotics Lab, Harvard University, Cambridge, Massachusetts.

December 2007 – December 2009

Postdoctoral Fellow, Princeton Institute for the Science and Technology of Materials (PRISM), Princeton University, Princeton, New Jersey.

Consulting Assignments

May 2012-December 2013

Disney Research Pittsburgh, Collaborative Innovation Center, Suite 110, 4720 Forbes Avenue, Pittsburgh, Pennsylvania 15213.

Laboratory Projects

(a) Undergraduate Projects

1. Jerry Carlson (MechE), "Dielectric Elastomer Actuators with Rapid Prototyping," Spring 2014
2. Arya Tabatabai (MechE), "Microcontact Printing with Liquid-Phase Gallium-Indium Alloy," Summer 2012 and 2013.
3. Claire Usiak (MechE), "Stamp Lithography and Freeze Sealing with Liquid-Phase Gallium-Indium Alloy," Summer 2012.
4. Ruthika Ruthika (MechE), "Soft-Matter Thermopneumatic Valves and Logic Gates with Conductive PDMS," Summer 2013.
5. Yichu Jin (MechE), "Soft Robot Quadruped with Dielectric Elastomer Actuator Limbs," Summer 2014 – Summer 2016.
6. Jessica Yin (MechE), "Liquid Metal-Microelectronics Integration for a Sensorized Soft Robot Skin," Summer 2017 – Summer 2020.
7. Richard Dauksher (MechE), "Characterization and analysis of a flexural shape memory alloy actuator," Spring 2021 – Fall 2021

(b) Master's Students

1. Arya Tabatabai (MechE), "Microcontact Printing with Liquid-Phase Gallium-Indium Alloy," Fall 2013 and Spring 2014
2. Daniel Tepayotl-Ramirez (MechE), "Collapse of Microfluidic Channels in a Soft Elastomer," Fall 2011 – Spring 2013.
3. Peter Roberts (RI-MRSD), "Soft-Matter Shear Sensor for Tactile Sensing," Summer/Fall 2012.
4. Aditya Bhat (MechE), "Undulating Soft Robot with Shape Memory Alloy," Summer 2013.
5. Yi Jin (MechE), "Virtual Environment for Simulating Soft Robot Locomotion in 2D and 3D," Summer 2013.
6. Vivek Ramachandran (MechE), "Ferroelectric Elastomers for Soft Machines," Fall 2014 – Summer 2016.
7. Xiaonan Huang (MechE), "Soft Robot Quadruped with Shape Memory Alloy Limbs," Fall 2014 – Summer 2016.
8. Hesham Zaini (MechE), "Electrochemically-Powered Liquid Metal Actuator," Fall 2015 – Summer 2017.
9. Loren Russell (MechE), "Electrochemically-Powered Liquid Metal Actuator," Fall 2015 – Summer 2017.
10. Jiahe Liao (RI), "Electrochemically-Powered Artificial Muscle," Fall 2016 – Summer 2018.
11. Zisheng Ye (MechE), "On-board Sensing for Untethered Soft Robots," Fall 2017 – Summer 2019.
12. Teresa Kent (MechE), "Liquid Crystal Elastomer Nanocomposites," Fall 2017 – Summer 2019.
13. Joonghyun (Peter) Ahn (MechE), "Origami-like Shape Programmable Materials," Fall 2017 – Summer 2019.
14. Yunsik Ohm (MechE), "Electronic Tattoo and Haptic Skin," Fall 2017 – Summer 2018.
15. Ryan Coulson (RI), "Stiffness Tuning Soft Robot Gripper," Fall 2018 – Summer 2020.
16. Yayati Jadhav (MechE), "Magnetic Thermoplastic Elastomer," Fall 2018 – Summer 2020.
17. Dongye Liu (MechE), "Liquid Metal Battery," Fall 2018 – Summer 2020.
18. Yongyi Zhao (MechE), "Self-healing Conductive Hydrogel Composite," Fall 2020 – Spring 2022.
19. Wuzhou Zu (MechE), "Printable Conductive Elastomer with Liquid Metal," Fall 2020 – Spring 2022.
20. Yafeng Hu (MSE), "High Dielectric Composites with Graphene Oxide and Liquid Metal," Fall 2021 – present.
21. Yichi Luo (MechE), "Bistable and Multistable Soft Actuators using Shape Memory Alloy," Fall 2021 – present.
22. Zefang Li (MechE), "Liquid Crystal Elastomer Actuators for Haptics and Wirelessly-activated Soft Robots," Fall 2021 – present.

(c) Ph.D. Students*Graduated*

1. Andrew Fassler (MechE), "Application of Liquid-Metal GaIn Alloys to Soft-matter Capacitance and Related Stretchable Electronics," Fall 2011 – Spring 2016.
2. Tong Lu (MechE), "Laser-based Rapid Prototyping Techniques for Liquid Metal Circuits," Spring 2012 – Fall 2016.
3. Lauren Finkenauer (MSE; co-advised with Michael Bockstaller), "Ligand mediated stabilization of low temperature metal eutectics and their use in composite systems," Fall 2012 – Spring 2017.
4. James Wissman (MechE), "Selected Methods for Field-Controlled Reconfiguration of Soft-Matter Electrical Contacts," Fall 2012 – Spring 2017.
5. Navid Kazim (CEE), "Theory of Percolating Micro/Nano Particles and Fluidic Droplets in Elastomer," Fall 2015 – Spring 2018.
6. Eric Markvicka (RI), "Autonomous Materials for Soft Robotics and Wearable Computing," Fall 2014 – Summer 2018.
7. Stuart Diller (MechE; co-advised with Steve Collins), "Electrostatic Actuators and Clutches for Wearable Assistive Robotics," Fall 2013 – Fall 2018.
8. Steven Rich (MechE), "Low-Voltage Stiffness-Tuning and Characterization of Conductive Thermoplastic Elastomers," Spring 2016 – Fall 2018.
9. Bugra Ozutemiz (MechE; co-advised with Burak Ozdoganlar), "Scalable Fabrication of Liquid-Gallium Microelectronics with Soft Lithography," Fall 2014 – Spring 2020.
10. Tess Hellebrekers (RI), "Sensing and Actuation for Underwater Soft Robots," Fall 2016 – Spring 2020.
11. Chengfeng Pan (MechE), "Methods for Tailoring the Optical and Electrical Properties of Soft Elastomer Composites," Fall 2016 – Summer 2020.
12. Xiaonan Huang (MechE), "Dynamics and Controls for Soft Autonomous Robots," Fall 2016 – Fall 2020.
13. Pratik Khandagale, (MechE; co-advised with Kaushik Dayal), "Modeling the Mechanics of Polymers and LM-Polymer Composites," Spring 2018 – Spring 2022.
14. Yunsik Ohm (MechE), "Conductive Hydrogel Composites," Fall 2018 – Spring 2022.
15. Jiahe Liao (RI), "Electrochemically-Powered Artificial Muscle," Fall 2018 – Spring 2022.
16. Zachary Patterson (MechE) Patterson, "Dynamics and Controls for Soft Autonomous Robots," Fall 2018 – Summer 2022.

Current

17. Kiyn Chin (RI), "Statistical Learning for Soft-Matter Robots," Fall 2018 – present.
18. Anthony Wertz (RI), "Multifunctional Smart Cast," Fall 2020 – present
19. Raunaq Bhirangi (RI), "Soft Tactile Skin," Fall 2020 – present
20. Michael Vinciguerra (MechE), "4D Multimaterial Printing," Fall 2020 – present
21. Nolen Keays (MechE; co-advised by Phil Leduc), "Soft Technologies for Cutaneous Display & Haptics," Fall 2020 – present
22. Mason Zadan (MechE), "Soft Thermoelectric Devices," Fall 2020 – present
23. Manuel Reis Carneiro (ECE; co-advised by Mahmoud Tavakoli, Univ. Coimbra), "Printable Soft Electronics for Biomedical Sensing," Fall 2020 – present
24. Peter Roberts (MechE), "Bio-inspired Adhesives for Robust Bioelectronic Sensing," Fall 2020 – present
25. Richard Desatnik (MechE; co-advised by Phil Leduc), "Soft Robot Locomotion," Spring 2021 – present
26. Akhil Padmanabha (RI; co-advised by Zackory Erickson), "Wearable Electronics for Scratch Detection and Eczema Monitoring," Fall 2021 – present

(d) Postdoctoral Fellows*Previous*

1. Wanliang Shan (MechE), "Soft-matter composites with electrically tunable elastic rigidity," Fall 2012 – Summer 2014.

2. Michael Bartlett (MechE), “Multi-Purpose Artificial Muscle and Sensor Array for Untethered Soft Robots,” Spring 2015 – Summer 2017.
3. Khalid Jawed (MechE), “4D Electromagnetic Origami,” Fall 2016 – Summer 2017.
4. Alexi Charalambides (MechE), “Soft Electronics for Wearable Biomonitoring,” Fall 2016 – Spring 2018.
5. Kitty Kumar (MechE), “Starfish-Inspired Soft Robot,” Fall 2016 – Summer 2018.
6. Navid Zolfaghari (MechE), “Mechanics of Liquid Metal Soft Microfluidics,” Spring 2018 – Spring 2019.
7. Mo Malakooti (MechE), “Liquid Metal Nanocomposites,” Fall 2017 – Summer 2019.
8. Michael Ford (MechE), “LM-LCE Composites,” Fall 2018 – Summer 2020.
9. Stuart Diller (MechE), “Electrostatic Actuators and Clutches for Wearable Assistive Robotics,” Spring 2018 – Summer 2020.
10. Andrew Sabelhaus (MechE), “Dynamics and Control of Soft Robot Locomotion,” Fall 2019 – Summer 2021.
11. Gina Olson (MechE), “Soft Structures with Anisotropic Compliance & Load Bearing,” Fall 2020 – Summer 2022.

Current

12. Chanho Jeong (MechE), “Textile-based Reconfigurable Electronics with Liquid Metal,” Spring 2022 – Spring 2023
13. Phillip Won (MechE), “Liquid Metal Nanocomposites for Bioelectronics,” Spring 2021 – present.
14. Robert Herbert (MechE), “3D Printed Soft Electronics and Multifunctional Materials,” Spring 2021 – present

Publications

Archival Papers Critically Reviewed Before Publication

CMU-based students and postdocs underlined

1. R Desatnik, ZJ Patterson, P Gorzelak, S Zamora, P LeDuc, C Majidi, “Soft robotics informs how an early echinoderm moved,” *Proceedings of the National Academy of Sciences* 120 e2306580120 (2023).
2. Y Zhao, Y Ohm, J Liao, Y Luo, HY Cheng, P Won, P Roberts, MR Carneiro, Mohammad F Islam, Jung Hyun Ahn, Lynn M Walker, Carmel Majidi, “A self-healing electrically conductive organogel composite,” *Nature Electronics* 6 206-215 (2023).
3. Y Ohm, J Liao, Y Luo, MJ Ford, C Majidi, “Reconfigurable Electrical Networks within a Conductive Hydrogel Composite,” *Advanced Materials* 35 2209408 (2023).
4. R Herbert, P Mocny, Y Zhao, TC Lin, J Zhang, M Vinciguerra, S Surprenant, WY Chan, S Kumar, MR Bockstaller, K Matyjaszewski, C Majidi, “Thermo-Mechanically Stable Liquid Metal Embedded Soft Materials for High-Temperature Applications,” *Advanced Functional Materials* 2309725 (2023).
5. NI Keeys, DK Patel, P LeDuc, C Majidi, “Soft magnetic thin film deformation with a bistable electropermanent magnet,” *Engineering Research Express* 5 035071 (2023).
6. Y Hu, C Majidi, “Dielectric Elastomers with Liquid Metal and Polydopamine-Coated Graphene Oxide Inclusions,” *ACS Applied Materials & Interfaces* 15 24769-24776 (2023).
7. P Won, S Coyle, SH Ko, D Quinn, KJ Hsia, P LeDuc, C Majidi, “Controlling C2C12 Cytotoxicity on Liquid Metal Embedded Elastomer,” *Advanced Healthcare Materials* 17 2202430 (2023).
8. DK Patel, X Huang, Y Luo, M Mungekar, MK Jawed, L Yao, C Majidi, “Highly Dynamic Bistable Soft Actuator for Reconfigurable Multimodal Soft Robots,” *Advanced Materials Technologies* 8 2201259 (2023).
9. Z Li, G Olson, DK Patel, L Yao, C Majidi, “Electrically Controlled Liquid Crystal Elastomer Surfaces for Dynamic Wrinkling,” *Advanced Intelligent Systems* 2200402 (2023).

10. ZJ Patterson, DK Patel, S Bergbreiter, L Yao, C Majidi, “A Method for 3D Printing and Rapid Prototyping of Fieldable Untethered Soft Robots,” *Soft Robotics* 10 292-300 (2023).
11. MR Vinciguerra, DK Patel, W Zu, M Tavakoli, C Majidi, L Yao, “Multimaterial Printing of Liquid Crystal Elastomers with Integrated Stretchable Electronics,” *ACS Applied Materials & Interfaces* 15 24777-24787 (2023).
12. MR Carneiro, AT de Almeida, M Tavakoli, C Majidi, “Recyclable Thin-Film Soft Electronics for Smart Packaging and E-Skins,” *Advanced Science* 2301673 (2023)
13. J Liao, C Majidi, M Sitti, “Liquid Metal Actuators: A Comparative Analysis of Surface Tension Controlled Actuation,” *Advanced Materials* e2300560-e2300560 (2023).
14. S Acharya, P Roberts, T Rane, R Singhal, P Hong, V Ranade, C Majidi, V Webster-Wood, R. Jayan, “Gecko adhesion based sea star crawler robot,” *Frontiers in Robotics and AI* 10 1209202 (2023)
15. H Choi, Y Luo, G Olson, P Won, JH Shin, J Ok, YJ Yang, T Kim, C Majidi, “Highly Stretchable and Strain-Insensitive Liquid Metal based Elastic Kirigami Electrodes (LM-eKE),” *Advanced Functional Materials* 33 2301388 (2023).
16. P Khandagale, T Breitzman, C Majidi, K Dayal, “Statistical field theory for nonlinear elasticity of polymer networks with excluded volume interactions,” *Physical Review E* 107 064501 (2023).
17. M Reis Carneiro, C Majidi, M Tavakoli, “Gallium-Based Liquid–Solid Biphasic Conductors for Soft Electronics,” *Advanced Functional Materials* 33 2306453 (2023).
18. JS Veiga, MR Carneiro, R Molter, M Vinciguerra, L Yao, C Majidi, M Tavakoli, “Toward Fully Printed Soft Actuators: UV-Assisted Printing of Liquid Crystal Elastomers and Biphasic Liquid Metal Conductors,” *Advanced Materials Technologies* 2300144(2023).
19. R Bhirangi, A DeFranco, J Adkins, C Majidi, A Gupta, T Hellebrekers, V Kumar, “All the Feels: A dexterous hand with large-area tactile sensing,” *IEEE Robotics and Automation Letters* 8 8311-8318 (2023).
20. AL Sanati, PA Lopes, A Chambel, AF Silva, DM Oliveira, C Majidi, AT Almeida, M Tavakoli, “Recyclable liquid metal–Graphene supercapacitor,” *Chemical Engineering Journal* 479 147894 (2023).
21. Y Zhang, C Pan, P Liu, L Peng, Z Liu, Y Li, Q Wang, T Wu, Z Li, C Majidi, L Jiang, “Coaxially printed magnetic mechanical electrical hybrid structures with actuation and sensing functionalities,” *Nature Communications* 14 4428 (2023).
22. Q Wang, C Pan, Y Zhang, L Peng, Z Chen, C Majidi, L Jiang, “Magnetoactive liquid-solid phase transitional matter,” *Matter* 6 855-872 (2023).
23. M Feng, D Yang, C Majidi, G Gu, “High-Speed and Low-Energy Actuation for Pneumatic Soft Robots with Internal Exhaust Air Recirculation,” *Advanced Intelligent Systems* 5 2200257 (2023).
24. P Won, CS Valentine, M Zadan, C Pan, M Vinciguerra, DK Patel, SH Ko, LM Walker, C Majidi, “3D Printing of Liquid Metal Embedded Elastomers for Soft Thermal and Electrical Materials,” *ACS Applied Materials & Interfaces* 14 55028-55038 (2022).
25. W Zu, Y Ohm, MR Carneiro, M Vinciguerra, M Tavakoli, C Majidi, “A Comparative Study of Silver Microflakes in Digitally Printable Liquid Metal Embedded Elastomer Inks for Stretchable Electronics,” *Advanced Materials Technologies* 7 2200534 (2022).
26. KB Ozutemiz, C Majidi, OB Ozdoganlar, “Scalable Manufacturing of Liquid Metal Circuits,” *Advanced Materials Technologies* 7 2200295 (2022).
27. X Huang, ZJ Patterson, AP Sabelhaus, W Huang, K Chin, Z Ren, MK Jawed, C Majidi, “Design and Closed-Loop Motion Planning of an Untethered Swimming Soft Robot Using 2D Discrete Elastic Rods Simulations,” *Advanced Intelligent Systems* 4 2200163 (2022).

28. M Reis Carneiro, C Majidi, M Tavakoli, “Multi-Electrode Printed Bioelectronic Patches for Long-Term Electrophysiological Monitoring,” *Advanced Functional Materials* 32 2205956 (2022).
29. J Liao, C Majidi, “Muscle-Inspired Linear Actuators by Electrochemical Oxidation of Liquid Metal Bridges,” *Advanced Science* 9 2201963 (2022).
30. AM Watson, MJ Ford, EJ Markvicka, WWL Fong, S Venkatesh, K Sengupta, C Majidi, C Tabor, “Stretchable Microwave Transmission Lines Using Liquid-Metal Embedded Elastomers,” *Advanced Engineering Materials* 24 2200345 (2022).
31. M Zadan, DK Patel, AP Sabelhaus, J Liao, A Wertz, L Yao, C Majidi, “Liquid Crystal Elastomer with Integrated Soft Thermoelectrics for Shape Memory Actuation and Energy Harvesting,” *Advanced Materials* 2200857 (2022).
32. M Reis Carneiro, C Majidi, M Tavakoli, “Dielectric Elastomer Actuators with Biphasic Ag–EGaIn Electrodes,” *Advanced Engineering Materials* 24 2100953 (2022).
33. E Kabuye, T Hellebrekers, J Bobo, N Keays, C Majidi, J Cagan, P Leduc, “Tracking of Scalpel Motions With an Inertial Measurement Unit System,” *IEEE Sensors Journal* 22 4651-4660 (2022).
34. ZJ Patterson, AP Sabelhaus, C Majidi, “Robust control of a multi-axis shape memory alloy-driven soft manipulator,” *IEEE Robotics and Automation Letters* 7 2210-2217 (2022).
35. AP Sabelhaus, RK Mehta, AT Wertz, C Majidi, “In-Situ Sensing and Dynamics Predictions for Electrothermally-Actuated Soft Robot Limbs,” *Frontiers in Robotics and AI* 9 (2022).
36. C Majidi, K Alizadeh, Y Ohm, A Silva, M Tavakoli, “Liquid metal polymer composites: From printed stretchable circuits to soft actuators,” *Flexible and Printed Electronics* 7 013002 (2022).
37. CJ Stabile, DJ Levine, GM Iyer, C Majidi, KT Turner, “The role of stiffness in versatile robotic grasping,” *IEEE Robotics and Automation Letters* 7 4733-4740 (2022).
38. A Hajalilou, AF Silva, PA Lopes, E Parvini, C Majidi, M Tavakoli, “Biphasic Liquid Metal Composites for Sinter-Free Printed Stretchable Electronics,” *Advanced Materials Interfaces* 9 2101913 (2022).
39. Y Dong, L Wang, N Xia, Z Yang, C Zhang, C Pan, D Jin, J Zhang, C Majidi, L Zhang, “Untethered small-scale magnetic soft robot with programmable magnetization and integrated multifunctional modules,” *Science Advances* 8 eabn8932 (2022).
40. N Xia, B Jin, D Jin, Z Yang, C Pan, Q Wang, F Ji, V Iacovacci, C Majidi, Y Ding, L Zhang, “Decoupling and Reprogramming the Wiggling Motion of Midge Larvae Using a Soft Robotic Platform,” *Advanced Materials* 34 2109126 (2022).
41. M Kim, C Cho, W Shin, JJ Park, J Kim, P Won, C Majidi, SH Ko, “Nanowire-assisted freestanding liquid metal thin-film patterns for highly stretchable electrodes on 3D surfaces,” *NPJ Flexible Electronics* 6 99 (2022).
42. M Sun, B Hao, S Yang, X Wang, C Majidi, L Zhang, “Exploiting ferrofluidic wetting for miniature soft machines,” *Nature Communications* 13 7919 (2022).
43. E Gallardo Hevia, CM McCann, M Bell, NP Hyun, C Majidi, K Bertoldi, RJ Wood “High-Gain Microfluidic Amplifiers: The Bridge between Microfluidic Controllers and Fluidic Soft Actuators,” *Advanced Intelligent Systems* 4 2200122 (2022).
44. Y Ohm, C Pan, MJ Ford, X Huang, J Liao, C Majidi, “An electrically conductive silver–polyacrylamide–alginate hydrogel composite for soft electronics,” *Nature Electronics* 4 185-192 (2021).
45. C Majidi, “Fluid-like Soft Machines with Liquid Metal,” *Matter* 4 336-337 (2021).
46. R Coulson, CJ Stabile, KT Turner, C Majidi, “Versatile Soft Robot Gripper Enabled by Stiffness and Adhesion Tuning via Thermoplastic Composite,” *Soft Robotics* 9 189-200 (2021).

47. M Zadan, C Chiew, C Majidi, MH Malakooti, "Liquid metal architectures for soft and wearable energy harvesting devices," *Multifunctional Materials* 4 012001 (2021).
48. Z Ren, M Zarepoor, X Huang, AP Sabelhaus, C Majidi, "Shape Memory Alloy (SMA) Actuator with Embedded Liquid Metal Curvature Sensor for Closed-Loop Control," *Frontiers in Robotics and AI* in press (2021).
49. J Liao, C Majidi, "Soft actuators by electrochemical oxidation of liquid metal surfaces," *Soft Matter* 17 1921-1928 (2021).
50. MJ Ford, Y Ohm, K Chin, C Majidi, "Composites of functional polymers: Toward physical intelligence using flexible and soft materials," *Journal of Materials Research* 1 1-23 (2021).
51. Y Zhao, P Khandagale, C Majidi, "Modeling electromechanical coupling of liquid metal embedded elastomers while accounting stochasticity in 3D percolation," *Extreme Mechanics Letters* 48 101443 (2021).
52. P Roberts, M Zadan, C Majidi, "Soft tactile sensing skins for robotics," *Current Robotics Reports* 2 343-354 (2021).
53. J Yin, R Hinchet, H Shea, C Majidi, "Wearable soft technologies for haptic sensing and feedback," *Advanced Functional Materials* 31 2007428 (2021).
54. R Dauksher, Z Patterson, C Majidi, "Characterization and analysis of a flexural shape memory alloy actuator," *Actuators* 10 202 (2021).
55. P Won, S Jeong, C Majidi, SH Ko, "Recent advances in liquid-metal-based wearable electronics and materials," *iScience* 24 7 102698 (2021).
56. E Rasmussen, D Guo, V Murthy, R Mishra, C Riviere, C Majidi, "A Soft Resistive Sensor with a Semicircular Cross-Sectional Channel for Soft Cardiac Catheter Ablation," *Sensors* 21 4130 (2021).
57. M Grasinger, C Majidi, K Dayal, "Nonlinear statistical mechanics drives intrinsic electrostriction and volumetric torque in polymer networks," *Physical Review E* 103 042504 (2021).
58. EW Hawkes, C Majidi, MT Tolley, "Hard questions for soft robotics," *Science Robotics* 6 eabg6049 (2021).
59. Z Shen, X Zhu, C Majidi, G Gu, "Cutaneous ionogel mechanoreceptors for soft machines, physiological sensing, and amputee prostheses," *Advanced Materials* 33 2102069 (2021).
60. PA Lopes, DF Fernandes, AF Silva, DG Marques, AT de Almeida, C Majidi, M Tavakoli, "Bi-phasic Ag-In-Ga-embedded elastomer inks for digitally printed, ultra-stretchable, multi-layer electronics," *ACS Applied Materials & Interfaces* 13 14552-14561 (2021).
61. CS Kim, OK Oh, H Choi, YJ Kim, GS Lee, HJ Kim, C Majidi, SW Kim, BJ Choi, "Variable rigidity module with a flexible thermoelectric device for bidirectional temperature control," *Soft Robotics* 8 662-672 (2021).
62. CP Ambulo, MJ Ford, K Searles, C Majidi, TH Ware, "4D-Printable Liquid Metal-Liquid Crystal Elastomer Composites," *ACS Applied Materials & Interfaces* 13 12805-12813 (2020).
63. C Majidi, "Soft sensors that can feel it all," *Science Robotics* 5 1 (2020).
64. P Won, SH Ko, C Majidi, A W Feinberg, V A Webster-Wood, "Biohybrid Actuators for Soft Robotics: Challenges in Scaling Up," *Actuators* 9 96 (2020).
65. MJ Ford, DK Patel, C Pan, S Bergbreiter, C Majidi, "Controlled Assembly of Liquid Metal Inclusions as a General Approach for Multifunctional Composites," *Advanced Materials* 32 2002929 (2020).
66. C Pan, D Liu, MJ Ford, C Majidi, "Ultrastretchable, Wearable Triboelectric Nanogenerator Based on Sedimented Liquid Metal Elastomer Composite," *Advanced Materials Technologies* 5 2000754 (2020).

67. CS Kim, OK Oh, H Choi, YJ Kim, GS Lee, HJ Kim, C Majidi, SW Kim, BJ Cho, "Variable Rigidity Module with a Flexible Thermoelectric Device for Bidirectional Temperature Control," *Soft Robotics* in press (2020).
68. AF Silva, H Paisana, T Fernandes, J Góis, A Serra, JFJ Coelho, AT de Almeida C Majidi M Tavakoli, "High Resolution Soft and Stretchable Circuits with PVA/Liquid-Metal Mediated Printing," *Advanced Materials Technologies* 5 (9), 2000343 (2020).
69. S Abdollahi, EJ Markvicka, C Majidi, AW Feinberg, "3D Printing Silicone Elastomer for Patient-Specific Wearable Pulse Oximeter," *Advanced Healthcare Materials* 9 1901735 (2020).
70. Q Wei, M Sun, Z Wang, J Yan, R Yuan, T Liu, C Majidi, K Matyjaszewski, "Surface engineering of liquid metal nanodroplets by attachable diblock copolymers," *ACS Nano* 14 9884-9893 (2020).
71. TA Kent, MJ Ford, EJ Markvicka, C Majidi, "Soft actuators using liquid crystal elastomers with encapsulated liquid metal Joule heaters," *Multifunctional Materials* 3 025003 (2020).
72. K Chin, T Hellebrekers, C Majidi, "Machine learning for soft robotic sensing and control," *Advanced Intelligent Systems* 2 1900171 (2020).
73. W Huang, X Huang, C Majidi, MK Jawed, "Dynamic simulation of articulated soft robots," *Nature Communications* 11 1-9 (2020).
74. T Hellebrekers, N Chang, K Chin, MJ Ford, O Kroemer, C Majidi, "Soft magnetic tactile skin for continuous force and location estimation using neural networks," *IEEE Robotics and Automation Letters* 5 3892-3898 (2020).
75. M Zadan, MH Malakooti, C Majidi, "Soft and stretchable thermoelectric generators enabled by liquid metal elastomer composites," *ACS Applied Materials & Interfaces* 12 17921-17928 (2020).
76. J Yin, R Hinchet, H Shea, C Majidi, "Wearable Soft Technologies for Haptic Sensing and Feedback," *Advanced Functional Materials* 2007428 (2020).
77. N Zolfaghari, P Khandagale, MJ Ford, K Dayal, C Majidi, "Network topologies dictate electromechanical coupling in liquid metal–elastomer composites," *Soft Matter* 16 8818-8825 (2020).
78. MJ Ford, M Palaniswamy, CP Ambulo, TH Ware, C Majidi, "Size of liquid metal particles influences actuation properties of a liquid crystal elastomer composite," *Soft Matter* 16 5878-5885 (2020).
79. X Huang, M Ford, ZJ Patterson, M Zarepoor, C Pan, C Majidi, "Shape memory materials for electrically-powered soft machines," *Journal of Materials Chemistry B* 8 4539-4551 (2020).
80. MH Malakooti, MR Bockstaller, K Matyjaszewski, C Majidi, "Liquid metal nanocomposites," *Nanoscale Advances* 2 2668-2677 (2020).
81. D Liu, L Su, J Liao, B Reeja-Jayan, C Majidi, "Rechargeable Soft-Matter EGaIn-MnO₂ Battery for Stretchable Electronics," *Advanced Energy Materials* 9 1902798 (2019).
82. EP Yalcintas, KB Ozutemiz, T Cetinkaya, L Dalloro, C Majidi, OB Ozdoganlar, "Soft electronics manufacturing using microcontact printing," *Advanced Functional Materials* 29 1906551 (2019).
83. SI Rich, V Nambeesan, R Khan, C Majidi, "Tuning the composition of conductive thermoplastics for stiffness switching and electrically activated healing," *Journal of Intelligent Material Systems and Structures* 30 2908-2918 (2019).
84. C Pan, Y Ohm, J Wang, MJ Ford, K Kumar, S Kumar, C Majidi, "Silver-coated poly (dimethylsiloxane) beads for soft, stretchable, and thermally Stable conductive elastomer composites," *ACS Applied Materials & Interfaces* 11 42561-42570 (2019).
85. MJ Ford, CP Ambulo, TA Kent, EJ Markvicka, C Pan, J Malen, TH Ware, C Majidi, "A multifunctional shape-morphing elastomer with liquid metal inclusions," *Proceedings of the National Academy of Sciences* 116 21438-21444 (2019).

86. MH Malakooti, N Kazem, J Yan, C Pan, EJ Markvicka, K Matyjaszewski, C Majidi, "Liquid Metal Supercooling for Low-Temperature Thermoelectric Wearables," *Advanced Functional Materials* **29** 1906098 (2019).
87. C. Pan, E. J. Markvicka, M. H. Malakooti, J. Yan, L. Hu, K. Matyjaszewski, C. Majidi, "Liquid Metal Elastomer Nanocomposite for Stretchable Dielectric Materials," *Advanced Materials* **31** 1900663 (2019).
88. E. J. Markvicka, R. Tutika, M. D. Bartlett, C. Majidi, "Soft Electronic Skin for Multi-Site Damage Detection and Localization," *Advanced Functional Materials* **29** 1900160 (2019).
89. J. Yan, M. H. Malakooti, C. Pan, L. Hu, M. Bockstaller, C. Majidi, K. Matyjaszewski, "Direct Solution Processable Liquid Metal Nanodroplets by SI-ATRP," *Nature Nanotechnology* **14** 684-690 (2019).
90. C. Majidi, "Soft circuits that self-heal under water," *Nature Electronics* **2** 58 (2019).
91. C. Majidi, "Soft-Matter Engineering for Soft Robotics," *Advanced Materials Technologies* **4** 1800477 (2019).
92. X. Huang, K. Kumar, M. K. Jawed, A. M. Nasab, Z. Ye, W. Shan, C. Majidi, "Highly Dynamic Shape Memory Alloy Actuator for Fast Moving Soft Robots," *Advanced Materials Technologies* **4** 1800540 (2019).
93. T. Hellebrekers, O. Kroemer, C. Majidi, "Soft Magnetic Skin for Continuous Deformation Sensing," *Advanced Intelligent Systems* in press (2019).
94. X. Huang, K. Kumar, M. K. Jawed, Z. Ye, C. Majidi, "Soft Electrically Actuated Quadruped (SEAQ) – Integrating a Flex Circuit Board and Elastomeric Limbs for Versatile Mobility," *IEEE Robotics and Automation Letters* **4** 12415-2422 (2019).
95. K. B. Justus, T. Hellebrekers, D. D. Lewis, A. Wood, C. Ingham, C. Majidi, P. R. LeDuc, C. Tan, "A biosensing soft robot: Autonomous parsing of chemical signals through integrated organic and inorganic interfaces," *Science Robotics* **4** eaax0765 (2019).
96. M. D. Bartlett, M. D. Dickey, C. Majidi, "Self-healing materials for soft-matter machines and electronics," *NPG Asia Materials* **11** 21 (2019).
97. N. N. Goldberg, X. Huang, C. Majidi, A. Novelia, O. M. O'Reilly, D. A. Paley, W. L. Scott, "On Planar Discrete Elastic Rod Models for the Locomotion of Soft Robots," *Soft Robotics* in press (2019).
98. D. G. Marques, P. A. Lopes, A. T. de Almeida, C. Majidi, M. Tavakoli "Reliable Interfaces for EGaIn Multi-Layer Stretchable Circuits and Microelectronics," *Lab on a Chip* **19** 897-906 (2019).
99. C. Majidi, "Mechanics of Fluid-Elastomer Systems in Soft Robotics," *Robotic Systems and Autonomous Platforms* 425-448 (2019).
100. S. Song, D. M. Drotlef, J. Paik, C. Majidi, M. Sitti, "Mechanics of a pressure-controlled adhesive membrane for soft robotic gripping on curved surfaces," *Extreme Mechanics Letters* **30** 100485 (2019).
101. P. A. Lopes, D. V. Gomes, D. G. Marques, P. Faia, J. Gois, T. F. Patricio, J. Coelho, A. Serra, A. T. de Almeida, C. Majidi, M. Tavakoli "Soft Bioelectronic Stickers: Selection and Evaluation of Skin-Interfacing Electrodes," *Advanced Healthcare Materials* **8** 1900234 (2019).
102. K. Kalantar-Zadeh, J. Tang, T. Daeneke, A. P. O'Mullane, L. A. Stewart, J. Liu, C. Majidi, R. S. Ruoff, P. S. Weiss, M. D. Dickey, "Emergence of Liquid Metals in Nanotechnology," *ACS Nano* **13** 7388-7395 (2019).
103. E. J. Markvicka, M. D. Bartlett, X. Huang, C. Majidi, "An autonomously electrically self-healing liquid metal-elastomer composite for robust soft-matter robotics and electronics," *Nature Materials* **17** 618-624 (2018).

Notable Paper: For the first time, we show a soft stretchable circuit capable of automatically reconfiguring its conductive pathways and maintaining electronic functionality when

electrically damaged. This result could have a transformative impact on the design and durability of soft-matter machines and electronics.

104. X. Huang, K. Kumar, M. K. Jawed, A. M. Nasab, Z. Ye, W. Shan, C. Majidi, "Chasing biomimetic locomotion speeds: Creating untethered soft robots with shape memory alloy actuators," *Science Robotics* **3** eaau7557 (2018).
Notable Paper: By combining shape memory alloy with thermally conductive elastomer, we can create robust dynamic actuators that dramatically improve the walking speed of soft robots. This includes fully untethered soft robots that are capable of walking at speeds similar to that of natural biological organisms of similar size.
105. M. Tavakoli, M. H. Malakooti, H. Paisana, Y. Ohm, D. G. Marques, P. A. Lopes, A. P. Piedade, A. T. de Almeida, and C. Majidi, "EGaIn-Assisted Room Temperature Sintering of Silver Nanoparticles for Stretchable, Inkjet-Printed, Thin-Film Electronics," *Advanced Materials* **30** 1801852 (2018).
106. N. Kazem, M. D. Bartlett, C. Majidi, "Extreme Toughening of Soft Materials with Liquid Metal," *Advanced Materials* **30** 1706594 (2018).
107. S. I. Rich, R. J. Wood, C. Majidi, "Untethered Soft Robotics," *Nature Electronics* **1** 102 (2018).
108. C. Pan, K. Kumar, J. Li, E. J. Markvicka, P. R. Herman, C. Majidi, "Visually Imperceptible Liquid Metal Circuits for Transparent, Stretchable Electronics with Direct Laser Writing," *Advanced Materials* **30** 1706937 (2018).
109. K. B. Ozutemiz, J. Wissman, O. B. Ozdoganlar, C. Majidi, "EGaIn–Metal Interfacing for Liquid Metal Circuitry and Microelectronics Integration," *Advanced Materials Interfaces* **5** 1701596 (2018).
110. S. B. Diller, S. H. Collins, C. Majidi, "The effects of electroadhesive clutch design parameters on performance characteristics," *Journal of Intelligent Material Systems and Structures* **29** 3804-3828 (2018).
111. V. Ramachandran, C. Majidi, "Deformation of Microchannels Embedded in an Elastic Medium," *Journal of Applied Mechanics* **85** 101004 (2018).
112. P. A. Lopes, H. Paisana, A. T. de Almeida, C. Majidi, M. Tavakoli, "Hydroprinted Electronics: Ultrathin Stretchable Ag-In-Ga E-Skin for Bioelectronics and Human-Machine Interaction," *ACS Applied Materials & Interfaces* **10** 38760-38768 (2018).
113. R. Rocha, P. Lopes, A. de Almeida, M. Tavakoli, C. Majidi, "Fabrication and Characterization of Bending and Pressure Sensors for a Soft Prosthetic Hand," *Journal of Micromechanics & Microengineering* **28** 034001 (2018).
114. L. Wang, Y. Yang, Y. Chen, C. Majidi, F. Iida, E. Askounis, Q. Pei, "Controllable and reversible tuning of material rigidity for robot applications," *Materials Today* **21** 563-576 (2018).
115. S. Coyle, C. Majidi, P. LeDuc, K. J. Hsia, "Bio-inspired soft robotics: Material selection, actuation, and design," *Extreme Mechanics Letters* **22** 51-59 (2018).
116. M. D. Bartlett, N. Kazem, M. J. Powell-Palm, X. Huang, W. Sun, J. A. Malen, and C. Majidi, "High thermal conductivity in soft elastomers with elongated liquid metal inclusions," *Proceedings of the National Academy of Sciences* **114** 2143–2148 (2017).
Notable Paper: We show that heterogeneous compositions of soft polysiloxane and liquid metal can exhibit an extraordinary combination of thermal and mechanical properties. This collaborative study includes novel methods of thermo-mechanical characterization along with enabling demonstrations in soft robotics and wearable computing.
117. N. Kazem, T. Hellebrekers, C. Majidi, "Soft Multifunctional Composites and Emulsions with Liquid Metals," *Advanced Materials* **29** 1605985 (2017).
118. S. Song, D. Drotleff, C. Majidi, M. Sitti, "Controllable Load Sharing for Soft Adhesive Interfaces on Three-Dimensional Surfaces," *Proceedings of the National Academy of Sciences* in press (2017).

119. L. K. Russell, J. Wissman, C. Majidi, "Liquid Metal Actuator Driven by Electrochemical Manipulation of Surface Tension," *Applied Physics Letters* **111** 254101 (2017).
120. J. Wissman, M. D. Dickey, C. Majidi, "Field-Controlled Electrical Switch with Liquid Metal," *Advanced Science* **4** 1700169 (2017).
121. S. Rich, S. H. Jang, Y. L. Park, C. Majidi, LM-cTPE Integration for Low-Voltage Stiffness Tuning," *Advanced Materials Technologies* **2** 1700179 (2017).
122. A. M. Nasab, A. Sabzehzar, M. Tatari, C. Majidi, W. Shan, "A Soft Gripper with Rigidity Tunable Elastomer Strips as Ligaments," *Soft Robotics* **4** 411-420 (2017).
123. M. Tavakoli, P. Lopes, J. Lourenço, R. P. Rocha, L. Giliberto, A. T. de Almeida, and C. Majidi, "Autonomous selection of closing posture of a robotic hand through embodied soft matter capacitive sensors," *IEEE Sensors Journal* **17** 5669-5677 (2017).
124. L. R. Finkenauer, Q. Lu, I. F. Hakem, C. Majidi, M. R. Bockstaller, "Analysis of the Efficiency of Surfactant-Mediated Stabilization Reactions of EGaIn Nanodroplets," *Langmuir* **33** 9703-9710 (2017).
125. T. Lu, E. Markvicka, Y. Jin, C. Majidi, "Soft-Matter Printed Circuit Board with UV Laser Micropatterning," *ACS Applied Materials and Interfaces* **9** 22055-22062 (2017).
126. M. Tavakoli, R. Rocha, L. Osorio, M. Almeida, A. de Almeida, V. Ramachandran, A. Tabatabai, T. Lu, C. Majidi, "Carbon doped PDMS: Conductance stability over time and implications on additive manufacturing of stretchable electronics," *Journal of Micromechanics and Microengineering* **27** 035010 (2017).
127. A. Cugno, S. Palumbo, M. Fraldi, L. Deseri, C. Majidi, "Role of Nonlinear Elasticity in Mechanical Impedance Tuning of Annular Dielectric Elastomer Membrane," *Extreme Mechanics Letters* **13** 116-125(2017).
128. M. Tavakoli, R. P. Rocha, J. Lourenço, T. Lu, C. Majidi, "Soft Bionics Hands with a Sense of Touch Through an Electronic Skin," *Soft Robotics: Trends, Applications and Challenges* 5-10 (2017).
129. M. Bartlett, A. Fassler, N. Kazem, E. Markvicka, P. Mandal, C. Majidi, "Stretchable, high-k dielectric elastomers through liquid metal inclusions," *Advanced Materials* **28** 3726–3731 (2016).
130. M. Bartlett, E. Markvicka, C. Majidi, "Rapid Fabrication of Soft, Multilayered Electronics for Wearable Biomonitoring," *Advanced Functional Materials* **26** 8496–8504 (2016).
131. C. Majidi, "Artificial Skin: Soft Electronics & Sensors for Bio-Inspired Robots and Wearable Computing," *ASME Dynamics Systems & Control* **4** 17-21 (2016).
132. V. Ramachandran, M. D. Bartlett, J. Wissman, C. Majidi, "Elastic instabilities of a ferroelastomer beam for soft reconfigurable electronics," *Extreme Mechanics Letters* **9** 282-290 (2016).
133. A. Tutcuoglu, C. Majidi, W. Shan, "Nonlinear thermal parameter estimation for embedded internal Joule heaters," *International Journal of Heat and Mass Transfer* **97** 412-421 (2016).
134. H.-S. Shin, J. Ryu, C. Majidi, Y.-L. Park, "Enhanced Performance of Microfluidic Soft Pressure Sensors with Embedded Solid Microspheres," *Journal of Micromechanics and Microengineering* **26** 02511 (2016).
135. A. Fassler, C. Majidi, "Liquid Phase Metal Inclusions for a Conductive Polymer Composite," *Advanced Materials* **27** 1928-1832 (2015).
Notable Paper: We introduce a novel conductive elastomer that has 1/10th the elastic rigidity of cPDMS and 100-1000x the volumetric conductivity. Moreover, its absolute resistance does not change with stretch. The composite could potentially be used as stretchable circuit wiring for "electronic skin" in soft robotics or wearable computing.
136. T. Lu, J. Wissman, Ruthika, C. Majidi, "Soft Anisotropic Conductors as Electric Vias for Ga-Based Liquid Metal Circuits," *ACS Applied Materials & Interfaces* **7** 26923–26929 (2015).

137. [N. Kazem](#), C. Majidi, C. Maloney, "Gelation And Mechanical Response Of Patchy Rods," *Soft Matter* **11** 7877-7887 (2015).
138. [W. Shan](#), [S. Diller](#), [A. Tutcuoglu](#), C. Majidi, "Rigidity-tuning conductive elastomer," *Smart Materials & Structures* **24** 065001 (2015).
139. X. Zhou, C. Majidi, O. M. O'Reilly, "Flexing into Motion: A Locomotion Mechanism for Soft Robots," *International Journal of Non-Linear Mechanics* **74** 7-17 (2015).
140. X. Zhou, C. Majidi, O. M. O'Reilly, "Soft hands: An analysis of some gripping mechanisms in soft robot design," *International Journal of Solids & Structures* **64-65** 155-165 (2015).
141. I. D. Joshipura, H. R. Ayers, C. Majidi, M. D. Dickey, "Methods to pattern liquid metals," *Journal of Materials Chemistry C* **3** 3834-3841 (2015).
142. [A. Tutcuoglu](#), C. Majidi, "Energy Harvesting with Stacked Dielectric Elastomer Transducers: Nonlinear Theory, Optimization, and Linearized Scaling Law," *Applied Physics Letters* **105** 241905 (2014).
143. [B. A. Gozen](#), [A. Tabatabai](#), O. B. Ozdoganlar, C. Majidi, "High-Density Soft-Matter Electronics with Micron-Scale Line Width," *Advanced Materials* **26** 5211-5216 (2014).
144. [T. Lu](#), [L. Finkenauer](#), [J. Wissman](#), C. Majidi, "Rapid Prototyping for Soft-Matter Electronics," *Advanced Functional Materials* **24** 3351-3356 (2014).
145. [J. Wissman](#), [L Finkenauer](#), L Deseri, C Majidi, "Saddle-like deformation in a dielectric elastomer actuator embedded with liquid-phase gallium-indium electrodes," *Journal of Applied Physics* **116** 144905 (2014).
146. X. Zhou, C. Majidi, O. M. O'Reilly "Energy Efficiency in Friction-Based Locomotion Mechanisms for Soft and Hard Robots: Slower can be Faster," *Nonlinear Dynamics* **78** 2811-2821 (2014).
147. [A. Fassler](#), C. Majidi, "3D Structures of Liquid-Phase GaIn Alloy Embedded in PDMS with Freeze Casting," *Lab on a Chip* **13** 4442-4450 (2013).
148. C. Majidi, R. F. Shepherd, R. K. Kramer, G. M. Whitesides, R. J. Wood, "Influence of Surface Traction on Soft Robot Undulation," *International Journal of Robotics Research* **32** 1577-1584 (2013).
149. R. Kramer, C. Majidi, R. J. Wood, "Masked Deposition of Gallium-Indium Alloys for Liquid-Embedded Elastomer Conductors," *Advanced Functional Materials* **23** 5292-5296 (2013).
150. [W. Shan](#), [T. Lu](#), Z.H. Wang, C. Majidi, "Thermal analysis and design of a multi-layered rigidity tunable composite," *International Journal of Heat and Mass Transfer* **66** 271-278 (2013).
151. [W. Shan](#), [T. Lu](#), C. Majidi, "Soft-matter composites with electrically tunable elastic rigidity," *Smart Materials and Structures* **22** 085005 (2013).
152. C. Majidi, "Soft Robotics: A Perspective – Current Trends and Prospects for the Future," *Soft Robotics* **1** 5-11 (2013).
153. [A. Tabatabai](#), [A. Fassler](#), [C. Usiak](#), C. Majidi, "Liquid-Phase Gallium-Indium Alloy Electronics with Microcontact Printing," *Langmuir* **29** 6194-6200 (2013).
154. [A. Fassler](#) and C. Majidi, "Soft-matter capacitors and inductors for hyperplastic strain sensing and stretchable electronics," *Smart Materials and Structures* **22** 055023 (2013).
155. C. Majidi, O. M. O'Reilly, J. A. Williams, "Bifurcations and Instability in the Adhesion of Intrinsically Curved Rods," *Mechanics Research Communications* **49** 13-16 (2013).
156. [D. Tepayotl-Ramirez](#), [Tong Lu](#), Y.-L. Park, C. Majidi, "Collapse of triangular channels in a soft elastomer," *Applied Physics Letters* **102** 044102 (2013).
157. Y.-L. Park, [D. Tepayotl-Ramirez](#), R. J. Wood, C. Majidi, "Influence of cross-sectional geometry on the sensitivity and hysteresis of liquid-phase electronic pressure sensors," *Applied Physics Letters* **101** 191904 (2012).

158. Z. Chen, Q. Guo, C. Majidi, W. Chen, D. J. Srolovitz, M. P. Haataja, "Nonlinear geometric effects in mechanical bistable morphing structures," *Physical Review Letters* **109** 114302 (2012).
159. C. Majidi, O. M. O'Reilly, J. A. Williams, "On the stability of a rod adhering to a rigid surface: Shear-induced stable adhesion and the instability of peeling," *Journal of the Mechanics and Physics of Solids* **6** 827-843 (2012).
160. C. Majidi, R. Kramer, R. J. Wood, "A non-differential elastomer curvature sensor for softer-than-skin electronics," *Smart Materials and Structures* **20** 105017 (2011).
161. Z. Chen, C. Majidi, M. Haataja, D. J. Srolovitz, "Tunable Helical Ribbons," *Applied Physics Letters* **98** 011906 (2010).
162. C. Majidi, Y.-L. Park (co-first author), R. Kramer, P. Berard, R. J. Wood, "Hyperelastic pressure sensing with a liquid-embedded elastomer," *Journal of Micromechanics and Microengineering* **20** 125029 (2010).
163. C. Majidi, R. J. Wood, "Tunable elastic stiffness with micro-confined magnetorheological domains at low magnetic field," *Applied Physics Letters* **97** 164104 (2010).
164. C. Majidi, M. Haataja, D. J. Srolovitz, "Analysis and design principles for shear-mode piezoelectric energy harvesting with ZnO nanoribbons," *Smart Materials and Structures* **19** 055027 (2010).
165. C. Majidi, G. G. Adams, "Adhesion and delamination boundary conditions for elastic plates with arbitrary contact shape," *Mechanics Research Communications* **37** 214-218 (2010).
166. R. Kramer, C. Majidi, R. J. Wood, "Shear-mode Contact Splitting for a Microtextured Elastomer Film," *Advanced Materials* **22** 3700-3703 (2010).
167. C. Majidi, Z. Chen, D. J. Srolovitz, M. Haataja, "Spontaneous Bending of Piezoelectric Nanoribbons: Mechanics, Polarization, and Space Charge Coupling," *Journal of the Mechanics & Physics of Solids* **58** 73-85 (2010).
168. C. Majidi, K.-T. Wan, "Adhesion between Thin Cylindrical Shells with Parallel Axes," *Journal of Applied Mechanics* **77** 041013 (2010).
169. C. Majidi, G. G. Adams, "A Simplified Formulation of Adhesion Problems with Elastic Plates," *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* **465** 2217-2230 (2009).
170. C. Majidi, "Shear Adhesion between an Elastica and a Rigid Flat Surface," *Mechanics Research Communications* **36** 369-372 (2009).
171. C. Majidi, R. S. Fearing, "Adhesion of an elastic plate to a sphere," *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* **464** 1309-1317 (2008).
172. J. Lee, C. Majidi, B. Schubert, R. S. Fearing, "Sliding-induced adhesion of stiff polymer microfiber arrays. I. Macroscale behavior," *Journal of the Royal Society Interface* **5** 835-844 (2008).
173. B. Schubert, J. Lee, C. Majidi, R. S. Fearing, "Sliding-induced adhesion of stiff polymer microfiber arrays. II. Microscale behavior," *Journal of the Royal Society Interface* **5** 845-853 (2008).
174. C. Majidi, R. E. Groff, R. S. Fearing, "Analysis of Shaft-Loaded Membrane Delamination Using Stationary Principles," *Mathematics & Mechanics of Solids* **13** 3-22 (2008).
175. C. Majidi, "Remarks on formulating an adhesion problem using Euler's elastica," *Mechanics Research Communications* **34** 85-90 (2007).
176. M. Peattie, C. Majidi, A. Corder, R. J. Full, "Ancestrally high elastic modulus of gecko setal beta-keratin," *Journal of the Royal Society Interface* **4** 1071-1076 (2007).
177. Schubert, C. Majidi, R. E. Groff, S. Baek, B. Bush, R. Maboudian, R. S. Fearing, "Towards Friction and Adhesion from High Modulus Microfiber Arrays," *Journal of Adhesion Science & Technology* **21** 1297-1315 (2007).

178. Majidi, R. E. Groff, Y. Maeno, B. Schubert, S. Baek, B. Bush, R. Maboudian, N. Gravish, M. Wilkinson, K. Autumn, R. S. Fearing "High Friction from a Stiff Polymer using Micro-Fiber Arrays," *Physical Review Letters* **97** 076103 (2006).
179. K. Autumn, C. Majidi, R. E. Groff, A. Dittmore, R. Fearing, "Effective elastic modulus of isolated gecko setal arrays," *Journal of Experimental Biology* **209** 3558-3568 (2006).
180. C. Majidi, R. E. Groff, R. S. Fearing, "Attachment of fiber array adhesive through side contact," *Journal of Applied Physics* **98** 103521 (2005).

Papers in Symposium or Conference Proceedings Reviewed Prior to Publication

Review Process: Anonymous peer review of complete manuscript prior to acceptance.

1. A Wertz, AP Sabelhaus, C Majidi, "Trajectory Optimization for Thermally-Actuated Soft Planar Robot Limbs," IEEE 5th International Conference on Soft Robotics (RoboSoft), 439-446 (2022).
2. M Zadan, DK Patel, MH Malakooti, L Yao, C Majidi, "Fabrication of 3D Printed Thermoelectric Devices for Integration Into Liquid Crystal Elastomer Actuators," Smart Materials, Adaptive Structures and Intelligent Systems 86274, V001T01A011 (2022).
3. A Hinduja, Y Ohm, J Liao, C Majidi, M Kaess, "Acoustic Localization and Communication Using a MEMS Microphone for Low-cost and Low-power Bio-inspired Underwater Robots," International Conference on Intelligent Robots and Systems (IROS), (2022).
4. H Yang, T Johnson, K Zhong, D Patel, G Olson, C Majidi, M Islam, L Yao, "ReCompFig: Designing Dynamically Reconfigurable Kinematic Devices Using Compliant Mechanisms and Tensioning Cables," Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (2022).
5. R Coulson, C Li, C Majidi, NS Pollard, "The Elliott and Connolly Benchmark: A Test for Evaluating the In-Hand Dexterity of Robot Hands," IEEE-RAS 20th International Conference on Humanoid Robots (2021).
6. J Wang, J Zhang, K Li, C Pan, C Majidi, S Kumar, "Locating everyday objects using NFC textiles," Proceedings of the 20th International Conference on Information Processing in Sensor Networks (2021).
7. AP Sabelhaus, C Majidi, "Gaussian process dynamics models for soft robots with shape memory actuators," IEEE 4th International Conference on Soft Robotics (RoboSoft), 191-198 (2021).
8. M Zarepoor, Z Ren, C Majidi, "Fabrication and Testing of a Soft Shape Memory Alloy Actuator With an Integrated Liquid Metal Sensor," Smart Materials, Adaptive Structures and Intelligent Systems 84027, V001T04A028 (2020).
9. J Yin, T Hellebrekers, C Majidi, "Closing the Loop with Liquid-Metal Sensing Skin for Autonomous Soft Robot Gripping," 2020 3rd IEEE International Conference on Soft Robotics (RoboSoft), 661-667 (2020).
10. A Almusa, R Galeza, M Wang, C Majidi, "Compliance-Tuning Soft Inflatable Wheels for Robot Mobility on Various Terrains," 2020 3rd IEEE International Conference on Soft Robotics (RoboSoft), 558-563 (2020).
11. X Huang, Z Ren, C Majidi, "Soft Thermal Actuators with Embedded Liquid Metal Microdroplets for Improved Heat Management," 2020 3rd IEEE International Conference on Soft Robotics (RoboSoft), 367-372 (2020).
12. S Kim, S Kim, H Majditehran, DK Patel, C Majidi, S Bergbreiter, "Electromechanical characterization of 3D printable conductive elastomer for soft robotics," 2020 3rd IEEE International Conference on Soft Robotics (RoboSoft), 318-324 (2020).
13. C Majidi, "Enhancing the permittivity of dielectric elastomers with liquid metal," Electroactive Polymer Actuators and Devices (EAPAD) XXII 11375, 113750Q (2020).
14. ZJ Patterson, AP Sabelhaus, K Chin, T Hellebrekers, C Majidi, "An Untethered Brittle Star-Inspired Soft Robot for Closed-Loop Underwater Locomotion," International Conference on Intelligent Robots and Systems (IROS), (2020).

15. EJ Markvicka, JM Rogers, C Majidi, "Wireless electronic skin with integrated pressure and optical proximity sensing," International Conference on Intelligent Robots and Systems (IROS), (2020).
16. T Hellebrekers, K Zhang, M Veloso, O Kroemer, C Majidi, "Localization and Force-Feedback with Soft Magnetic Stickers for Precise Robot Manipulation," International Conference on Intelligent Robots and Systems (IROS), (2020).
17. J Wang, C Pan, H Jin, V Singh, Y Jain, JI Hong, C Majidi, S Kumar, "Rfid tattoo: A wireless platform for speech recognition," Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 3 1-24 (2019).
18. J Zimmer, T Hellebrekers, T Asfour, C Majidi, O Kroemer, "Predicting grasp success with a soft sensing skin and shape-memory actuated gripper," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, 7120-7127 (2019).
19. MD Bartlett, EJ Markvicka, R Tutika, C Majidi, "Soft-matter damage detection systems for electronics and structures," Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, Civil Infrastructure, and Transportation XIII, 10971, Denver, Colorado (2019).
20. X. Huang, K. Kumar, M.K. Jawed, Z. Ye, C. Majidi, "Soft Electrically Actuated Quadrupe (SEAQ)-Integrating a Flex Circuit Board and Elastomeric Limbs for Versatile Mobility," IEEE International Conference on Robotics and Automation (ICRA), Montreal, Canada (2019).
21. E. Markvicka, G. Wang, Y.C. Lee, G. Laput, C. Majidi, L. Yao "ElectroDermis: Fully Untethered, Stretchable, and Highly-Customizable Electronic Bandages," ACM Conference on Human Factors in Computing Systems (CHI), Glasgow, UK (2019).
22. S. Swaminathan, K.B. Ozutemiz, C. Majidi, S.E. Hudson, "FiberWire: Embedding Electronic Function into 3D Printed Mechanically Strong, Lightweight Carbon Fiber Composite Objects," ACM Conference on Human Factors in Computing Systems (CHI), Glasgow, UK (2019).
23. T. Hellebrekers, K. B. Ozutemiz, J. Yin, C. Majidi, "Liquid Metal-Microelectronics Integration for a Sensorized Soft Robot Skin," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Madrid, Spain (2018).
24. M. Tavakoli, M. H. Malakooti, H. Paisana, Y. Ohm, D. G. Marques, P. A. Lopes, A. P. Piedade, A. T. de Almeida, and C. Majidi, "Fabrication of Soft and Stretchable Electronics Through Integration of Printed Silver Nanoparticles and Liquid Metal Alloy," ASME Smart Materials, Adaptive Structures and Intelligent Systems, San Antonio, TX (2018)
25. E. Markvicka, S. Rich, J. Liao, H. Zaini, C. Majidi, "Low-cost wearable human-computer interface with conductive fabric for STEAM education," IEEE Integrated STEM Education Conference (ISEC), Princeton, NJ (2018).
26. M. Bell, I. Pestovski, W. Scott, K. Kumar, M. K. Jawed, D. Paley, C. Majidi, J. Weaver, and R. Wood, "Echinoderm-inspired Tube Feet for Robust Locomotion and Adhesion," IEEE International Conference on Robotics and Automation (ICRA), Brisbane, Australia (2018).
27. R. Rocha, P. Lopes, A. T. de Almeida, M. Tavakoli, and C. Majidi, "Soft-matter sensor for proximity, tactile and pressure detection," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Seattle, Washington (2017).
28. S. Diller, C. Majidi, S. Collins, "A lightweight, low-power electroadhesive clutch and spring for exoskeleton actuation," IEEE International Conference on Robotics and Automation (ICRA), Stockholm, Sweden (2016).
29. M. Weigel, T. Lu, G. Bailly, A. Oulasvirta, C. Majidi, J. Steimle, "iSkin: Flexible, Stretchable and Visually Customizable On-Body Touch Sensors for Mobile Computing" ACM Conference on Human Factors in Computing Systems (CHI), Seoul, Korea (2015).
Notable Paper: Implementation of prototyping technique introduced in [4.B.9] for rapid fabrication of stretchable tactile sensors. The sensors are integrated into a wearable "skin" that were evaluated and field tested by collaborators at the Max Planck Institute for Informatics. The sensors were found to be versatile and robust, with >99% fidelity (accuracy of user input relative to false negatives/positives) for certain sensing modes. This work received the Best Paper Award

at CHI 2015.

30. S. Song, C. Majidi, M. Sitti, “GeckoGripper: A soft, inflatable robotic gripper using gecko-inspired elastomer micro-fiber adhesives” IEEE International Conference on Intelligent Robots and Systems (IROS), Chicago, IL (2014).
31. L. R. Finkenauer, C. Majidi, “Compliant liquid metal electrodes for dielectric elastomer actuators,” SPIE Symposium on Electroactive Polymer Actuators and Devices, San Diego, CA (2014).
32. J. Wissman, C. Majidi, “Soft-matter electronics with stencil lithography,” IEEE Conference on Sensors, Baltimore, MD (2014).
33. P. Roberts, D. D. Damian, W. L. Shan, T. Lu, C. Majidi, “Soft-Matter Capacitive Sensor for Measuring Shear and Pressure Deformation,” IEEE International Conference on Robotics and Automation (ICRA), Karlsruhe, Germany (2013).
34. Y.-L. Park, B.-R. Chen, C. Majidi, R. J. Wood, R. Nagpal, E. Goldfield, “Active modular elastomer sleeve for soft wearable assistance robots,” IEEE International Conference on Intelligent Robots and Systems, Vilamoura, Portugal (2012).
35. R. Kramer, C. Majidi, R. Sahai, R. J. Wood, “Soft Curvature Sensors for Joint Angle Proprioception,” IEEE International Conference on Intelligent Robots and Systems, San Francisco, CA (2011).
36. R. Kramer, C. Majidi, R. J. Wood, “Wearable Tactile Keypad with Stretchable Artificial Skin,” IEEE International Conference on Robotics and Automation, Shanghai, China (2011).
37. C. Majidi, R. S. Fearing, “Mechanics of a Novel Shear-activated Microfiber Array Adhesive,” Proceedings of the MRS 2008 Spring Meeting, San Francisco, CA (2008).
38. M. Spenko, M. Cutkosky, C. Majidi, R. S. Fearing, R. E. Groff, K. Autumn, “Foot design and integration for bioinspired climbing robots,” Proceedings of SPIE, Unmanned Systems Technology VIII 623019 (2006).
39. T. Tong, Y. Zhao, L. Delzeit, C. Majidi, R. E. Groff, P. Reddy, A. Majumdar, A. Kashani, M. Meyyappan, “Compressive Properties of Dense Vertically Aligned Multi-walled Carbon Nanotube Arrays,” Proceedings of the ASME 2005 Integrated Nanosystems, Berkeley, CA (2005).
40. C. Majidi, R. E. Groff, R. S. Fearing, “Clumping and Packing of Hair Arrays Manufactured by Nanocasting,” Proceedings of the ASME 2004 International Mechanical Engineering Congress and Exposition, Anaheim, CA (2004).

Issued Patents

1. C. Majidi, T. Lu, E. Markvicka, “Method for fabrication of a soft-matter printed circuit board,” US Patent & Trademark Office **11,523,514** December 6, 2022.
2. S. Song, M. Sitti, D. Drotlef, C. Majidi, “Gripping apparatus and method of producing a gripping apparatus,” US Patent & Trademark Office **11,511,442** November 29, 2022.
3. M. Tavakoli, H. Paisana, A. T. de Almeida, C. Majidi, “Liquid Metal Fusion with Conductive Inks and Pastes,” US Patent & Trademark Office **11,395,413** July 19, 2022.
4. N. Kazem, C. Majidi, “Method, apparatus, and assembly for thermally connecting layers,” US Patent & Trademark Office **11,335,622** May 17, 2022.
5. A. Charalambides, B. Stancil, A. Rape, N. Keeyes, C. Majidi, P. LeDuc, “Digital patch for discrete signaling, a baseball glove including same, and related method of manufacture,” US Patent & Trademark Office **11,266,897** March 8, 2022.
6. C. Majidi et al., “Polymer composite with liquid metal inclusions,” US Patent & Trademark Office **11,232,883** January 25, 2022.
7. A. Charalambides, C. Majidi, “Method of creating a flexible circuit,” US Patent & Trademark Office **11,184,975** November 23, 2021.

8. A. Charalambides, B. Stancil, A. Rape, N. Keeys, C. Majidi, P. LeDuc, "Digital patch for discrete signaling, a baseball glove including same, and related method of manufacture," US Patent & Trademark Office **11,103,764** August 31, 2021.
9. C. Majidi, C. Pan, K. Kumar, "Stretchable electronics and methods of making the same," US Patent & Trademark Office **11,017,915** May 25, 2021.
10. C. Majidi, S. Diller, S. Collins, "Electrostatic Clutch," US Patent & Trademark Office **10,998,835** May 4, 2021.
11. C. Majidi, B. Ozdoganlar, A. Tabatabai, B. A. Gozen, "High-density soft-matter electronics," US Patent & Trademark Office **10,945,339** March 9, 2021.
12. N. Kazem, C. Majidi, "Method, apparatus, and assembly for thermally connecting layers," US Patent & Trademark Office **10,777,483** September 15, 2020.
13. C. Majidi, T. Lu, E. Markvicka, "Method for fabrication of a soft-matter printed circuit board," US Patent & Trademark Office **10,757,815** August 25, 2020.
14. C. Majidi, S. Collins, S. Diller, "Electrostatic Clutch," US Patent & Trademark Office **10,749,450** August 18, 2020.
15. C. Majidi et al., "Polymer composite with liquid metal inclusions," US Patent & Trademark Office **10,720,261** July 21, 2020.
16. C. Majidi, M. D. Bartlett, E. J. Markvicka, "Soft, multilayered electronics for wearable devices and methods to produce the same," US Patent & Trademark Office **10,645,803** May 5, 2020.
17. C. Majidi, S. Collins, S. Diller, "Electrostatic Clutch," US Patent & Trademark Office **10,554,154** February 4, 2020.
18. C. Majidi et al., "Artificial Skin and Elastic Sensor," US Patent & Trademark Office **10,527,507** January 7, 2020.
19. G. K. Fedder, C. Majidi, et al., "Integrated electronic device with flexible and stretchable substrate," US Patent & Trademark Office **10,462,897** October 29, 2019.
20. C. Majidi, S. Collins, S. Diller, "Electrostatic Clutch," US Patent & Trademark Office **10,355,624** July 16, 2019.
21. C. Majidi et al., "Artificial Skin and Elastic Sensor," US Patent & Trademark Office **9,841,331** December 12, 2017.
22. C. Majidi, R. K. Kramer, R. J. Wood, "Non-differential elastomer curvature sensor," US Patent & Trademark Office **9,228,822** January 5, 2016.
23. C. Majidi, R. J. Wood, "Enhanced Friction of Micropatterned Surfaces Immersed in Magnetorheological Fluid," US Patent & Trademark Office **8,579,842** November 12, 2013
24. C. Majidi, R. J. Wood, P. Berard, Y.-L. Park, "Stretchable two-dimensional pressure sensor," US Patent & Trademark Office **8,316,719** November 27, 2012.
25. R. S. Fearing, R. Groff, C. Majidi, "Symmetric, spatular attachments for enhanced adhesion of micro- and nano-fibers," US Patent & Trademark Office **8,309,201** November 13, 2012.
26. R. S. Fearing, A. Bachrach, R. E. Groff, C. Majidi, "Actively switchable nano-structured adhesive," US Patent & Trademark Office **7,914,912** March 29, 2011.
27. C. Majidi, R. Groff, R. S. Fearing, "Nanostructured friction enhancement using fabricated microstructure," US Patent & Trademark Office **7,799,423** September 21, 2010.
28. C. Majidi, R. Groff, R. S. Fearing, S. D. Jones, "Compliant base to increase contact for micro- or nano-fibers," US Patent & Trademark Office **7,709,087** May 4, 2010.

Professional Activities

Membership and Activities in Honorary Fraternities, Professional Societies

Member, American Physical Society
 Member, American Society of Civil Engineers
 Member, American Society of Mechanical Engineers
 Member, Institute of Electrical and Electronics Engineering
 Member, Materials Research Society
 Member, Society of Engineering Sciences

Editorial Roles on Publications, Major Activities in Professional Meetings

Journal Editorial Board: Soft Robotics; Mary Ann Liebert, Inc.; 2013 – present
 Advanced Intelligent Materials; Wiley-VCH; 2019 – present
 IEEE Robotics & Automation Letters; 2019 – present

Conference/Workshop Organizer:

2012 APS March Meeting
 2013 APS March Meeting
 Abstract sorting for the following sessions at the 2013 APS March Meeting:
 Continua, Networks, & Earthquakes
 Rods & Buckling
 Shells, Plates, & Thin Films
 Soft-matter, Biology, & Bioinspiration
 Interfaces
 Tunable Materials
 Wrinkling
 2014 NAE Frontiers of Engineering; Robotics Symposium
 2016 UMD Workshop on Distributed Sensing, Actuation, and Control for
 Bioinspired Soft Robotics

Awards, Prizes, Honors

2020 Carnegie Science Award
 2019 David P. Casasent Outstanding Research Award
 2018 Clarence H. Adamson Professorship
 2016 CIT Dean's Early Career Fellow
 2015 George Tallman Ladd Award
 2015 ACM CHI 2015 Best Paper Award [4.C.1]
 2014 NASA, Early Career Faculty Program; Award Recipient
 2014 National Academy of Engineering, Frontiers of Engineering; Session Organizer
 2013 National Academy of Engineering, Frontiers of Engineering; Invited Attendee
 2013 Poptech Science Fellow
 2013 Air Force Office of Scientific Research, Young Investigator Program; Award Recipient
 2012 Defense Advanced Research Projects Agency, Young Faculty Award
 2012 Office of Naval Research, Young Faculty Award
 2001 Merrill Presidential Scholar, Cornell University; Awarded to seniors with a GPA in the top 1 percentile of the graduating class.
 2001 Banner Bearer, Cornell University Graduation Ceremony; Honor bestowed to seniors with a GPA among the top 3 in the College of Engineering.

Service on CMU Committees

Spring 2019 – present Department of Mechanical Engineering Graduate Education Committee
 Fall 2013 MechE Seminar Series Organizer
 Spring 2013 – 2017 Department of Mechanical Engineering Faculty Search Community
 Fall 2011 – Spring 2014 Department of Mechanical Engineering Graduate Education Committee
 Fall 2014 – Spring 2017 Department of Mechanical Engineering Undergraduate Education Committee
 Fall 2012 – Spring 2014 University Faculty Senate

Media Interviews and Articles

March 2023	Ira Flato, "Softbotics," NPR Science Friday (Radio)
January 2023	"Liquid Robots," <i>Science in Action</i> BBC World Service (Radio)
June 2022	Fionna Samuels, "Electronic Skin Lets Humans Feel What Robots Do – And Vice-Versa," <i>Scientific American</i>
May 2022	Kurt Kleiner, "This Liquid Metal Could Transform Soft Electronics," <i>Smithsonian Magazine</i>
May 2022	Sascha Brodsky, "Why We Need AI-Powered Robot Hands," <i>Lifewire</i> (Online)
November 2021	Sam Shea, "Mark Zuckerberg says a new skin-like material could support metaverse ambitions," <i>CNBC</i> (online)
April 2020	Moritz Sivers, "Underwater Crawling Soft Robot Stays in Shape," <i>Hackaday</i> (Online)
April 2020	Jeff Spry, "Meet PATRICK, Carnegie Mellon's New Spongebob-Inspired Robotic Starfish," <i>SYFY Wire</i> (Online)
April 2020	Ingrid Fadelli, "This is PATRICK: Meet the brittle star-inspired robot that can crawl underwater," <i>TechXplore</i> (Online)
June 2019	Kristin Houser, "Robot Arm uses Bacteria in its Fingers to "Taste" its Environment," <i>Futurism</i> (Online)
December 2019	"These Electronic Stickers Can Measure Your Heart Rate and Oxygen Levels," <i>Cheddar TV</i> (Broadcast)
April 2019	Hari Sreenivasan, "Self-healing Electronics," <i>PBS SciTech</i> (Broadcast)
December 2018	Jessie Wade, "Electronic 'Skin' Could Help Future Prosthetics Feel Pressure and Temperature," <i>IGN</i> (Online)
May 2018	Peter Holley, "Terminator skin: Researchers create 'self-healing' material for robots," <i>Washington Post</i> (Print)
May 2018	Katrina Filippidis, "Researchers build a self-healing 'robot skin'," <i>Engadget</i> (Online)
April 2017	Hari Sreenivasan, "Engineering Smart Tattoos," <i>PBS SciTech</i> (Broadcast)
February 2017	Cecile Borkhataria, "'Thubber' could revolutionise robotics and even lead to flexible phones: Radical new material can conduct heat and stretch to six times its length," <i>Daily Mail</i> (Online)
April 2016	Edd Gent, "Shape-Shifting Drones Could Be Made from Metal-Foam Hybrid," <i>livescience</i> (online)
July 2015	Ari Daniel, "Softer, More Human Robots," <i>PBS NOVA</i> (Online)
May 2015	Ben Gruber, "The future of cuddly robots," <i>Reuters</i> (Online)
March 2015	Alexandra Ossola, "Control your Smartphone with Stickers on your Skin," <i>Popular Science</i> (Online)
November 2014	David Templeton, "Soft robotic arm developed at CMU inspires Disney's animated feature," <i>Pittsburgh Post-Gazette</i>
July 2014	Katherine Harmon, "A Tentacled, Flexible Breakthrough" <i>New York Times</i> (Print)
July 2014	Helen Knight, "Squishy Robots" <i>MIT Press</i>
July 2013	Katherine Harmon, "Will the Robot Uprising Be Squishy?" <i>Scientific American</i> (Online).
March 2013	Adam Hadhzy, "Soft Bots," <i>Popular Science</i> (Print)
April 2012	Jennifer Hicks, "Soft Robotics Takes Shape," <i>Forbes</i> (Online).
May 2012	Neil Savage, "Soft Robots for Hard Problems," <i>IEEE Spectrum</i> (Print)
November 2011	Alicia Chang, "Gummy-like flexible robot crawls in tight spaces," <i>Associated Press</i> .