



**PANAGIOTIS (PANOS) POLYGERINOS**  
Mechanical Engineer, B.Eng. (Hons), M.Sc., Ph.D.  
Associate Professor of Soft Robotics  
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Crete, Greece

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Personal Webpage: [polygerinos.com](http://polygerinos.com)

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## PERSONAL INFORMATION

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<b>Gender:</b>	Male
<b>Date of Birth:</b>	June 7 <sup>th</sup> 1984
<b>Nationality:</b>	Greek
<b>Military Service</b> <b>Oct. 2011 – Jul. 2012:</b>	Scientific advisor (acting sergeant rank) - Technical Directorate, Hellenic Army General Staff.

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## EDUCATION & TRAININGS

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<b>Aug. 2012 – Aug. 2015:</b>	<b>Harvard University, U.S.A.</b> <b>Wyss Institute Postdoctoral fellow of Technology Development (Robotics)</b>
<b>Sep. 2008 – Sep. 2011:</b>	<b>King's College London, U.K.</b> <b>Ph.D. in Mechanical Engineering (Robotics)</b> (Alexander S. Onassis Foundation & EPSRC Scholar)
<b>Sep. 2006 – Sep. 2007:</b>	<b>King's College London, University of London, U.K.</b> <b>M.Sc. in Mechatronics</b> (Pass with Distinction)
<b>Sept. 2002 – Aug. 2006:</b>	<b>Technological Educational Institute of Crete, Greece</b> <b>B.Eng. (Hons) in Mechanical Engineering</b> Emphasis in Mechatronics and Manufacturing systems. (First of my class and in the Top 3% of total graduates)

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## EMPLOYMENT

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<b>June 2021 – Present:</b>	<b>Associate Professor (tenured) of soft robotics and mechatronics, Hellenic Mediterranean University, Crete, Greece</b> Primary appointment with the Mechanical Engineering department <ul style="list-style-type: none"><li>Faculty member of the Control Systems and Robotics Laboratory (CSRL)</li></ul>
<b>June 2020 – May 2021:</b>	<b>Invention &amp; Research Engineer, BiC Violex, Athens, Greece</b> Integral member of the Data Driven Innovation Lab. Aiding in the identification and creation of innovative research ideas/ products.
<b>Apr. 2019 – June 2020:</b>	<b>Senior Advisor, Ernst &amp; Young (EY), Athens, Greece</b> Advising services in: Program management, Strategic planning, Markets & Business Development, Internet of Things, Robotics Process Automation, Digital Industries.

<b>Aug. 2015 – Apr. 2019:</b>	<b>Assistant Professor, Ira A. Fulton Schools of Engineering, Arizona State University (ASU)</b> Primary appointment in The Polytechnic School, Systems Engineering program <ul style="list-style-type: none"> <li>• Director of the ASU Bio-Inspired Mechatronics Lab</li> </ul> Graduate faculty member: <ul style="list-style-type: none"> <li>• Mechanical Engineering and Aerospace Engineering programs, endorsed to chair, School for Engineering of Matter, Transport and Energy (SEMTE)</li> <li>• Biomedical Engineering, endorsed to chair, School of Biological and Health Systems Engineering (SBHSE)</li> <li>• Human Systems Engineering program, endorsed to co-chair, The Polytechnic School (TPS)</li> </ul> Honors Faculty, Barrett, The Honors College
<b>May 2014 – Aug. 2015:</b>	<b>Technology Development Fellow, Wyss Institute, Harvard University, USA</b> <ul style="list-style-type: none"> <li>• Bio-Inspired Robotics Group: Soft robotics for medical applications</li> </ul> Supervisor/Mentor: Prof. C. J. Walsh
<b>Aug. 2012 – May 2014:</b>	<b>Postdoctoral Fellow, School of Engineering and Applied Sciences &amp; Wyss Institute, Harvard University, USA</b> <ul style="list-style-type: none"> <li>• Harvard Biodesign Lab: Soft robotics for medical applications</li> </ul> Supervisor/Mentor: Prof. C. J. Walsh
<b>Jan. 2013 – May 2013:</b>	<b>Teaching Fellow, School of Engineering and Applied Sciences, Harvard University, USA</b>
<b>Oct. 2008 – May 2011:</b>	<b>Teaching Assistant, Mechanical Engineering dept., King's College London</b>
<b>Sept. 2007 – Jun. 2008:</b>	<b>Lecturer, Mechanical Engineering dept., Technological Educational Institute of Crete, Greece</b>
<b>Mar. 2006 – Aug. 2006:</b>	<b>Mechanical Engineering Placement, Automation and Robotics Laboratory, Technological Educational Institute of Crete, Greece</b>

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## RESEARCH & DEVELOPMENT PROJECT SUPPORT RECEIVED

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### Summary of Research Support (Active)

15. "ARISE: Advanced AI and Robotics for autonomous task pErformance".  
 Sponsor: HORIZON-CL4-2023-DIGITAL-EMERGING-01-0, 2024/01-2028/12.  
 PI for Hellenic Mediterranean University, €500.086, 100%. Consortium Budget: €7.994.162

14. "SWAG: Soft Wearable Assistive Garments for Human Empowerment".  
 Sponsor: HORIZON-CL4-2022-DIGITAL-EMERGING-02-06, 2023/11-2027/10.  
 PI for Hellenic Mediterranean University, €700.000, 100%. Consortium Budget: €5.366.195

13. "PALPABLE: Multi-sensing Tool for Minimally Invasive Surgery".  
 Sponsor: HORIZON-CL4-2022-DIGITAL-EMERGING-01-03, 2023/1-2026/12.  
 PI for Hellenic Mediterranean University, €550.000, 100%. Consortium Budget: €2.909.336

**Summary of Research Support (Past)**

12. "Anthropomorphic robotic ankle prosthesis with programmable materials".

Sponsor: National Science Foundation (NSF) – National Robotics Initiative (NRI), 2018/9-2022/8.

PI, \$800.000, 50%, with Co-PI Prof. P. Artemiadis.

11. "Water Pipe Inspection Using a Novel Low-cost Soft Robot (Phase II)".

Sponsor: Salt River Project (SRP), 2018/7-2019/6.

PI, \$61.100, 100%

10. "Water Quality Assessment Based on Autonomous Drones with Onboard Soft Robotic Graspers (Phase II)".

Sponsor: Salt River Project-JRP (SRP), 2018/7-2019/6.

Co-PI, \$61.567, 50%, with PI Prof. W. Zhang.

9. "Improving Lower-Limb Assistance and Rehabilitation through a Soft Robotic Exosuit".

Sponsor: Arizona Biomedical Research Commission, 2018/3-2021/2

PI, \$225.000, 100%

8. "EAGER: Distributed Planning and Precision Control of Soft Robotic Arms".

Sponsor: National Science Foundation (NSF), 2018/4-2019/10.

PI, \$143.100, 50%, with Co-PI Prof. W. Zhang.

7. "Water Pipe Inspection Using a Novel Low-cost Soft Robot".

Sponsor: Salt River Project (SRP)-CREC, 2017/7-2018/6.

PI, \$59.686, 100%

6. "Water Quality Assessment Based on Autonomous Drones with Onboard Soft Robotic Graspers".

Sponsor: Salt River Project (SRP)-CREC, 2017/7-2018/6.

Co-PI, \$62.366, 50%, with PI Prof. W. Zhang.

5. "Soft Robotic Exosuit for Lower-Limb Assistance and Rehabilitation through Task-Specific Training".

Sponsor: Piper Health Solutions Seed Grant, 2017/1-2018/6.

PI, \$49.930, 50%, with Co-PI Prof. W. Zhang.

4. "Developing a Mechatronics Design Innovation Course".

Sponsor: Venturewell, 2016/3-2019/8.

PI, \$29.998, 100%

3. "Soft Robotic Exosuit for Lower-Limb Assistance and Rehabilitation through Task-Specific Training".

Sponsor: Ira A. Fulton Schools of Engineering, NIH Seed Grant Program, 2018/1-2018/10.

PI, \$58.000, with Co-PI Prof. W. Zhang.

2. "Supporting Entrepreneurship through a Hands-on Mechatronics Device Innovation Course".

Sponsor: Kern Family Foundation through ASU Kern Grant, 2018/1-2018/5.

PI, \$12.000,00, 100%

1. "Empowering Knee Rehabilitation and Assistance of Athletes with a Soft Robotic Exosuit".

Sponsor: ASU Global Sport Institute, 2018/1-2018/12.

PI, 16.500, with Co-PI Prof. W. Zhang.

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**HONORS AND AWARDS**


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<b>2021:</b>	<b>Elsevier BV: Listed in the top 2% scientists worldwide (100,000 top-scientists).</b> Ioannidis, J. P.A. (2022), "September 2022 data-update for "Updated science-wide author databases of standardized citation indicators"", doi: 10.17632/btchxktzyw.5
<b>2020:</b>	<b>Elsevier BV: Listed in the top 2% scientists worldwide (100,000 top-scientists).</b> Baas, J.; Boyack, K.; Ioannidis, J. P.A. (2021), "August 2021 data-update for "Updated science-wide author databases of standardized citation indicators"", doi: 10.17632/btchxktzyw.3
<b>2019:</b>	<b>Elsevier BV: Listed in the top 2% scientists worldwide (100,000 top-scientists).</b> Baas, J.; Boyack, K.; Ioannidis, J. P.A. (2020), "Data for "Updated science-wide author databases of standardized citation indicators"", doi: 10.17632/btchxktzyw.2
<b>2018:</b>	<b>KEEN Professorship, Arizona State University, 2018</b>
<b>2016:</b>	<b>VentureWell Faculty Award</b>
<b>2015:</b>	<b>IEEE International Conference on Rehabilitation Robotics 2015</b> Best paper award
<b>2014:</b>	<b>Wyss Institute Technology Development Fellowship</b> Fellows are selected on the basis of their academic achievements, demonstrated interest and postdoctoral experience in technology development.
<b>2010:</b>	<b>IEEE Robotics and Automation Society, U.S.A.</b> Travel Award to attend the 2010 IEEE International Conference on Robotics and Automation, Anchorage, Alaska, U.S.A
<b>2009:</b>	<b>University of Montpellier 2, Montpellier, France</b> Financial scholarship of student mobility to participate in the 4 <sup>th</sup> Summer European Campus in Surgical Robotics (doctoral level), held in Montpellier, France
<b>2009:</b>	<b>Royal Engineering Academy, U.K.</b> Award of International Travel Grant to attend the 2009 IEEE International Conference of Engineering in Medicine and Biology, Minneapolis, U.S.A
<b>2009:</b>	<b>Environmental Sustainability Award 2009, King's College London S.I.F.E. - C.I.C.</b> Winning a Sustainable Engineering competition held by S.I.F.E for the best technical idea to implement for a rural community in Fiji Islands
<b>2008 - 2011:</b>	<b>Alexander S. Onassis Public Benefit Foundation, Greece.</b> Scholarship for Doctoral studies in King's College London, U.K.
<b>2008 - 2011:</b>	<b>Engineering &amp; Physical Sciences Research Council (E.P.S.R.C.), U.K.</b> Doctoral Training Award
<b>2008:</b>	<b>The Schilizzi Foundation, U.K.</b> Scholarship for Doctoral studies
<b>2006:</b>	<b>Greek Ministry of Education, "Framework Archimedes II grant", (€50,000), Greece.</b> Co-Investigator, Research outcomes used towards my B.Eng Final year Thesis
<b>2005:</b>	<b>Greek State Scholarship Foundation (I.K.Y.), Greece.</b> Excellence Award for the 3 <sup>rd</sup> year of my B.Eng studies in the Technological Educational Institute of Crete, Greece
<b>2004:</b>	<b>European Region Action Scheme for the Mobility of University Students (ERASMUS)</b> Scholarship of student mobility for 6 months in Glasgow Caledonian University Scotland - U.K
<b>2003:</b>	<b>Greek State Scholarship Foundation (I.K.Y.), Greece.</b> Excellence Award for the 1 <sup>st</sup> year of my B.Eng studies

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**ADVISEE AWARDS**


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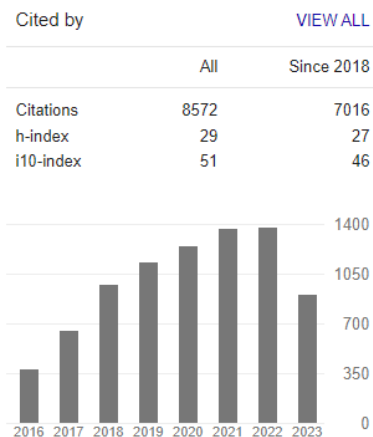
Fall 2018:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Jack Gavin
Summer 2018:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Yida Tong
Spring 2018:	<b>Arizona State University - Master's Opportunity for Research in Engineering (MORE)</b> Niveditha Muthukrishnan
Spring 2018:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Bryce Copenhaver, Joshua Hsu, Robert Tichy, Curtis Sparks
Fall 2017:	<b>National Science Foundation – Graduate Research Fellowships Program (NSF GRFP)</b> Carly Thalman – 4 year fellowship for PhD studies
Fall 2017:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Curtis Sparks, Wade Adams, Robert Tichy
Spring 2017:	<b>Arizona State University – SEMTE: Outstanding Honors Thesis Award</b> Luis Saenz, Deven Govin
Spring 2017:	<b>ASME Design of Medical Devices Conference – Paper ranked in the top 10</b> Maggie Zhu, Wade Adams
Spring 2017:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Luis Saenz, Deven Govin, Caleb Carlson, Quoc Lam
Fall 2016:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) – Best Poster Award</b> Taylor Hoffmann
Fall 2016:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Carly Thalman, Taylor Hoffmann, Caleb Carlson, Wade Adams
Spring 2016:	<b>Arizona State University - Fulton Undergraduate Research Initiative (FURI) Awards</b> Alexandra Hoffmann, Beatriz Gracia, Weston Olson, Taylor Hoffmann
May 2015:	<b>Harvard University SEAS Dean's Award for Outstanding Senior Engineering Project</b> Emily Rogers (S.B. Biomedical Engineering), Thesis title: “Assistive Exoskeleton for Injury Prevention During Downhill Walking”. co-advised by Donal Holland
April 2014:	<b>Grand Prize Award, ASME Design of Medical Devices, Three in Five Competition,</b> Paxton Maeder-York, Tyler Clites, Emily Boggs, Ryan Neff
April 2014:	<b>Third Place Award, ASME Design of Medical Devices, Intern. Student Design Showcase</b> Ye Ding, Joshua Gafford, Andrew Harris, Terrence McKenna

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**PUBLICATIONS, INTELLECTUAL PROPERTY, AND PRESENTATIONS**


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Total Citations (as of Oct. 07, 2023): **8572** (**h-index: 29**, **i-10 index: 51**)  
(Source: Google Scholar)



**Peer-reviewed Journal Publications:**

- [26] I. Zournatzis, S. Kalaitzakis, P. Polygerinos, SoftER: A Spiral Soft Robotic Ejector for Sorting Applications, *IEEE Robotics and Automation Letters*, vol. 8, no. 11, 2023.
- [25] P.H. Nguyen, K. Patnaik, S. Mishra, P. Polygerinos, W. Zhang, "A soft-bodied aerial robot for collision resilience and contact-reactive perching", *Soft Robotics*, vol. 10, no. 4, 2023. **[FRONT COVER]**  
(Impact Factor: 7.9)
- [24] B. Wang, Y. Chen, Y. Wu, Y. Lin, S. Peng, X. Liu, S. Wu, S. Liu, J. Yi, P. Polygerinos, Z. Wang, "An Underwater Glider with Muscle-Actuated Buoyancy Control and Caudal Fin Turning", *Machines*, vol. 10, no. 5, p.381, 2022. **["Machines 2022 Best Paper Award" – Under consideration]**  
(Impact Factor: 2.899)
- [23] S. Sridar, S. Poddar, Y. Tong, P. Polygerinos, W. Zhang, "Towards Untethered Soft Pneumatic Exosuits using Low-Volume Inflatable Actuator Composites and a Portable Pneumatic Source", *IEEE Robotics and Automation Letters*, vol. 5, no.3, 2020.  
(Impact Factor: 4.321)
- [22] S. Sridar, Z. Qiao, A. Rascon, A. Biemond, A. Beltran, T. Maruyama, C. Kwasnica, P. Polygerinos, W. Zhang, "Evaluating Immediate Benefits of Assisting Knee Extension with a Soft Inflatable Exosuit, *IEEE Transactions on Medical Robotics and Bionics*, vol. 2, no. 2, pp.216-225, 2020.  
(Impact Factor: 3.98)
- [21] P. H. Nguyen, C. Sparks, S. G. Nuthi, N. M. Vale, P. Polygerinos\*, "Soft Poly-Limbs: Towards a New Paradigm of Mobile Manipulation for Daily Living Tasks", *Soft Robotics*, 2018.  
(Impact Factor: 7.9)
- [20] S. Sridar, Z. Qiao, W. Zhang, P. Polygerinos\*, "A Soft-Inflatable Exosuit for Knee Rehabilitation: Assisting Swing Phase During Walking", *Frontiers in Robotics and AI*, vol. 5, no.44, 2018.  
(Impact Factor: 3.4)
- [19] F. Sebastian, Q. Fu, M. Santello, and P. Polygerinos\*, "Soft Robotic Haptic Interface with Variable Stiffness for Rehabilitation of Neurologically Impaired Hand Function", *Frontiers in Robotics and AI*, vol. 4, p.69, 2017.  
(Impact Factor: 3.4)
- [18] P. Polygerinos\*, N. Correll, S. A. Morin, B. Mosadegh, C. Onal, K. Petersen, M. Cianchetti, M. Tolley, R. Shepherd, "Soft robotics: Review of Fluid-Driven Intrinsically Soft Devices; manufacturing, sensing, control, and Applications in Human-Robot Interaction", *Advanced Engineering Materials*, vol. 19, no. 12, 2017. **[FRONT COVER]**  
(Impact Factor: 4.122)
- [17] P. H. Nguyen, S. Sridar, W. Zhang, P. Polygerinos\*, "Design and control of a 3-chambered fiber reinforced soft actuator with off-the-shelf stretch sensors", *International Journal of Intelligent Robotics and Applications*, vol. 1, no. 3, pp. 342-351, 2017.  
(Impact Factor: 1.69)
- [16] Z. Wang, P. Polygerinos, J. Overvelde, K. Galloway, K. Bertoldi, and C. Walsh\*, "Interaction Forces of Soft Fiber Reinforced Bending Actuators", *IEEE/ASME Transactions on Mechatronics*, vol. 22, no. 2, pp. 717-727, 2017.  
(Impact Factor: 5.867)

- [15] F. Connolly, P. Polygerinos, C. Walsh, and K. Bertoldi\*, "Mechanical Programming of Soft Actuators by Varying Fiber Angle", *Soft Robotics*, vol. 2, no. 1, pp. 26-32, 2015.  
**[8<sup>th</sup> most cited of Journal (first 5-years) – Google Scholar Analytics]** (Impact Factor: 7.9)
- [14] E. T. Roche+, A. Fabozzo+, Y. Lee+, P. Polygerinos+, I. Friehs, L. Schuster, A. C. Berazaluce, A. Bueno, N. Lang, M. J. N. Pereira, E. Feins, S. Wassermann, E. D. O' Cearbhaill, N. V. Vasilyev, D. J. Mooney, J. M. Karp, P. J. del Nido, C. J. Walsh, "A light reflecting balloon catheter for atraumatic tissue defect repair", *Science Translational Medicine*, vol. 7, no. 306, pp. 306ra148, 2015, **[FRONT COVER]**  
 (Impact Factor: 19.343)
- [13] P. Polygerinos, Z. Wang, J. T. B. Overvelde, K. C. Galloway, R. J. Wood, K. Bertoldi, C. J. Walsh\*, "Modeling of soft Fiber-reinforced Bending Actuators", *IEEE Transactions on Robotics*, vol. 31, no. 3, pp. 778 – 789, 2015. **[8<sup>th</sup> most cited of Journal (first 5-years) – Google Scholar Analytics]**  
 (Impact Factor: 6.835)
- [12] J. Overvelde, Y. Menguc, P. Polygerinos, Y. Wang, Z. Wang, C. J. Walsh, R. J. Wood and K. Bertoldi\*, "Numerical mechanical and electrical analysis of soft liquid-embedded deformation sensors", *Extreme Mechanics Letters*, vol. 1, 2014.  
 (Impact Factor: 4.728)
- [11] E. Park, N. Mehandru, T. L. Beltran, E. Kraus, D. Holland, P. Polygerinos and C. Walsh\*, "An Intraventricular Soft Robotic Pulsatile Assist Device For Right Ventricular Heart Failure", *ASME Journal of Medical Devices*, vol. 8, no 2, 2014.  
 (Impact Factor: 0.743)
- [10] A. Degirmenci, B. Goldberg, L. Bielskis, S. Wiggins, P. Polygerinos, D. Holland and C. Walsh\*, "Cervical Spine Immobilization Device for Emergency Response", *ASME Journal of Medical Devices*, vol. 8, no 2, 2014.  
 (Impact Factor: 0.743)
- [09] P. Maeder-York, T. Clites, E. Boggs, R. Neff, P. Polygerinos, D. Holland and C. Walsh\*, "Biologically Inspired Soft Robot for Thumb Rehabilitation", *ASME Journal of Medical Devices*, vol. 8, no 2, 2014.  
 (Impact Factor: 0.743)
- [08] J. Gafford, Y. Ding, A. Harris, T. McKenna, **P. Polygerinos**, D. Holland, A. J. Moser and C. Walsh\*, "Shape Deposition Manufacturing of a Soft, Atraumatic, Deployable Surgical Grasper", *ASME Journal of Mechanisms and Robotics*, vol. 8, no 2, 2014.  
 (Impact Factor: 2.576)
- [07] P. Polygerinos, Z. Wang, K. C. Galloway, R. J. Wood, C. J. Walsh\*, "Soft robotic glove for combined assistance and at-home rehabilitation", *Robotics and Autonomous Systems*, Vol. 73, pp. 135–143, 2015.  
**[1<sup>st</sup> most cited of Journal (first 5-years) – Google Scholar Analytics]**  
 (Impact Factor: 4.3)
- [06] D. Holland, E. J. Park, P. Polygerinos, G. J. Bennett and C. J. Walsh\*, "The Soft Robotics Toolkit: Shared Resources for Research and Design for Soft Robotics", *Soft Robotics*, vol. 1, no. 3, 2014.  
 (Impact Factor: 7.9)
- [05] B. Mosadegh, P. Polygerinos, C. Keplinger, S. Wennstedt, R. F. Shepherd, U. Gupta, J. Shim, K. Bertoldi, C.J. Walsh and G. M. Whitesides\*, "Pneumatic networks for soft robotics that actuate rapidly", *Advanced Functional Materials*, vol.2, no. 15, pp. 2163-217, 2014. **[FRONT COVER]**  
 (Impact Factor: 19.924)
- [04] P. Polygerinos, L. D. Seneviratne, R. Razavi, T. Schaeffter and K. Althoefer\*, "Triaxial catheter-tip force sensor for MRI-guided cardiac procedures", *IEEE/ASME Transactions on Mechatronics*, vol. 18,



no. 1, pp. 386-396, 2013.  
(Impact Factor: 5.867)

- [03] P. Polygerinos, A. Ataollahi, T. Schaeffter, R. Razavi, G. Jaswinder, L. D. Seneviratne, and Kaspar Althoefer\*, "MRI-Compatible Intensity Modulated Force Sensor for Cardiac Catheterization Procedures", *IEEE Transactions on Biomedical Engineering*, vol. 58, no. 3, pp. 721-726, 2011.  
(Impact Factor: 4.756)
- [02] P. Polygerinos, L. D. Seneviratne and K. Althoefer\*, "Modeling of Light Intensity-Modulated Fiber-Optic Displacement Sensors", *IEEE Transactions on Instrumentation and Measurement*, vol. 60, no. 4, pp. 1408-1415, 2011.  
(Impact Factor: 5.332)
- [01] P. Polygerinos, D. Zbyszewski, T. Schaeffter, R. Razavi, L. D. Seneviratne and K. Althoefer\*, "MRI-Compatible Fiber-Optic Force Sensors for Catheterization Procedures", *IEEE Sensors Journal*, vol. 10, no. 10, pp. 1598-1608, 2010.  
(Impact Factor: 4.325)

### **Peer-reviewed Conference Publications:**

- [34] A. Geladaris, L. Papakostas, A. Mastrogeorgiou, M. Sfakiotakis, P. Polygerinos, "Real-Time Local Map Generation and Collision-Free Trajectory Planning for Autonomous Vehicles in Dynamic Environments", *In: IEEE 3rd International Conference on Control, Artificial Intelligence, Robotics and Optimization (ICCAIRO)*, Ierapetra, Greece, April, 2023.
- [33] P.H. Nguyen, F. Lopez-Arellano, W. Zhang, P. Polygerinos, "Design, Characterization, and Mechanical Programming of Fabric-Reinforced Textile Actuators for a Soft Robotic Hand", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2019)*, pp. 8312-8317.
- [32] S. Amatya, A. S. Lafmejani, S. Poddar, S. Sridar, T. Sugar, P. Polygerinos, "Design, Development, and Control of a Fabric-Based Soft Ankle Module to Mimic Human Ankle Stiffness", *in Proc. IEEE Int. Conf. on Rehab. Robot. (ICORR)*, 2019, pp. 886-891.
- [31] P. H. Nguyen, S. Sridar, S. Amatya, C.M. Thalman, P. Polygerinos\*, "Fabric-Based Soft Grippers Capable of Selective Distributed Bending for Assistance of Daily Living Tasks", *IEEE-RAS International Conference on Soft Robotics (RoboSoft, Seoul, Korea (South))*, 2019, pp. 404-409.
- [30] P. H. Nguyen, I. I. B. Mohd, C. Sparks, F. L. Arellano, P. Polygerinos\*, "Fabric Soft Poly-Limbs for Physical Assistance of Daily Living Tasks", *in Proc. IEEE Int. Conf. Robot. Autom. (ICRA)*, 2019, pp. 8429-8435.
- [29] C. Thalman, J. Hsu, L. Snyder, P. Polygerinos\*, "Design of a Soft Ankle-Foot Orthosis Exosuit for Foot Drop Assistance", *in Proc. IEEE Int. Conf. Robot. Autom. (ICRA)*, 2019, pp. 8436-8442.
- [28] Z. Qiao, P. H. Nguyen, P. Polygerinos, W. Zhang, "Dynamic Modeling and Motion Control of a Soft Robotic Arm", *American Control Conference (ACC)*, Philadelphia, PA, 2019, pp. 5438-5443.
- [27] F. J. L. Arellano, S. Gandhi, D. Patil, B. Roquemore, T. Maruyama, P. Polygerinos\*, "Soft Wearable Deltoid Assistive Device", *ASME Design of Medical Devices Conference*, 2019.
- [26] J. Krigbaum, A. Rascon, H. Patil, S. Jameson, P. Polygerinos\*, "Haptic Neurofeedback Device for



- Parkinson's Patients", *ASME Design of Medical Devices Conference*, 2019.
- [25] S. Chaudhuri, S. Kannapiran, J. Nyugen, V. L. Gentz, P. Polygerinos\*, "Design of a Soft Ankle Joint Device for Correction of Inversion/Eversion Angle During Aquatic Therapy", *ASME Design of Medical Devices Conference*, 2019.
- [24] S. Mishra, D. Yang, C. Thalman, P. Polygerinos, W. Zhang\*, "Design and Control of a Hexacopter with Soft Grasper for Autonomous Object Detection and Grasping", *ASME Dynamic Systems and Control Conference (DSCC)*, Atlanta, Georgia, 2018.
- [23] D. Govin#, L. Saenz, G. Athanasaki, L. Snyder, P. Polygerinos\*, "Design and Development of a Soft Robotic Back Orthosis", *ASME Design of Medical Devices Conference*, pp. V001T10A001, 2017.
- [22] W. Zhang, P. Polygerinos+, "Distributed Planning of Multi-Segment Soft Robotic Arms", *American Control Conference (ACC)*, Milwaukee, WI, 2018, pp. 2096-2101.
- [21] C. Thalman, Q. P. Lam, P. H. Nguyen, S. Sridar, P. Polygerinos\*, "A Novel Soft Elbow Exosuit to Supplement Bicep Lifting Capacity", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018)*, Madrid, Spain, 2018, (In Press).
- [20] S. Sridar, R. G. Narasimha, A. M. Gadagi, V. Taduru, C. Strzelczyk, T. Maruyama, C. StClair, P. Polygerinos\*, "Soft Robotic Shoulder Assist Device: Towards Prevention of Shoulder Overuse Syndrome in Wheelchair Users", *ASME Design of Medical Devices Conference*, 2018, pp. V001T10A002.
- [19] W. Adams, S. Sridar, C. Thalman, B. Copenhaver#, H. Elsaad, P. Polygerinos\*, "Water pipe robot utilizing soft inflatable actuators", *IEEE-RAS International Conference on Soft Robotics (RoboSoft)*, Livorno, Italy, 2018, pp. 321-326.
- [18] M. Dickens, A. Wadekar, K. S. Bhutada, P. H. Nguyen, S. Jameson, P. Polygerinos\*, "Weight Distribution Monitoring System for Patients With Parkinson's Disease", *ASME Design of Medical Devices Conference*, 2018, pp. V001T11A001.
- [17] S. Sridar, P. H. Nguyen, M. Zhu, Q. P. Lam, P. Polygerinos\*, "Development of a Soft-Inflatable Exosuit for Knee Rehabilitation", *IEEE International Conference on Intelligent Robots and Systems (IROS 2017)*, Vancouver, BC, Canada, 2017, pp. 3722-3727.
- [16] W. Olson, P. Polygerinos\*, "Towards a Soft Robotic 3rd Arm for Activities of Daily Living", *Design of Medical Devices Conference*, MN, 2017, pp. V001T11A006.
- [15] M. Zhu, W. Adams, P. Polygerinos\*, "Soft Robotic Carpal Tunnel Syndrome Relief Device for Typing Applications", *Design of Medical Devices Conference*, MN, 2017, pp. V001T03A003. **(Top 10 papers)**.
- [14] A. Hoffmann, B. Gracia, T. Lopez, P. Polygerinos\*, "Development of a Dynamically Adjusting Soft Wheelchair Insert for Reduction of Single-Point Pressure", *Design of Medical Devices Conference*, MN, 2017, pp. V001T03A004.
- [13] P. Chinimilli, S. Wachtel, P. Polygerinos, W. Zhang\*, "Hysteresis Compensation for Ground Contact Force Measurement with Shoe-Embedded Air Pressure Sensors", *ASME Dynamic Systems and Control Conference (DSCC)*, pp. 9920, 2016.
- [12] P. Polygerinos, K. C. Galloway, S. Sanan, M. Herman, C. J. Walsh\*, "EMG Controlled Soft Robotic Glove for Assistance During Activities of Daily Living", in *Proc. IEEE Int. Conf. on Rehab. Robot. (ICORR)*, 2015, pp. 55-60. **[BEST CONFERENCE PAPER AWARD]**

- [11] P. Polygerinos, K. C. Galloway, E. Savage, M. Hermann, K. O' Donnell and C.J. Wash\*, "Soft Robotic Glove for Hand Rehabilitation and Task Specific Training", *in Proc. IEEE Int. Conf. Robot. Autom. (ICRA)*, 2015, pp. 2913 - 2919.
- [10] E. J. Park, D. Holland, P. Polygerinos, G.J. Bennett, C.J. Walsh\*, "Shared Design Tools to Support Research and Development in Soft Robotics", *in Advances in Soft Robotics Workshop, in conjunction with the 2014 Robotics: Science and Systems Conference*, Berkeley, CA, 2014.
- [09] P. Polygerinos, S. Lyne, Z. Wang, L. F. Nicolini, B. Mosadegh, G. M. Whitesides, and C. J. Walsh\*, "Towards a Soft Pneumatic Glove for Hand Rehabilitation," *in proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Tokyo, Japan, 2013, pp. 1512-1517.  
**[11th most cited of Conference (first 5-years) - Google Scholar Analytics]**
- [08] K. Galloway, P. Polygerinos, C. Walsh, and R.J. Wood\*, "Mechanically Programmable Bend Radius for Fiber-Reinforced Soft Actuators", *in Proc. IEEE Int. Conf. on Advanced Robotics (ICAR)*, Montevideo, Uruguay, Nov. 2013, pp. 1-6.
- [07] P. Polygerinos, P. Puangmali, T. Schaeffter, R. Razavi, L. D. Seneviratne and K. Althoefer\*, "Novel miniature MRI-compatible fiber-optic force sensor for cardiac catheterization procedures", *in Proc. IEEE Int. Conf. Robot. Autom. (ICRA)*, Anchorage, Alaska, 2010, pp. 2598-2603.
- [06] A. Ataollahi, P. Polygerinos, P. Puangmali, L. D. Seneviratne and K. Althoefer\*, "Tactile Sensing Array using prismatic-tip optical fibers for dexterous robotic hands", *IEEE International Conference on Intelligent Robots and Systems (IROS)*, Taipei, Taiwan, 2010, pp. 910-915.
- [05] P. Báez, S. Chhaniyara, A. Ataollahi, P. Polygerinos and K. Althoefer\*, "Design of a Fiber Optic Based Tactile Array Sensor", *EPSRC Workshop on Human Adaptive Mechatronics (HAM)*, Loughborough, U.K., Oct.13-14, 2010.
- [04] P. Polygerinos, T. Schaeffter, L. D. Seneviratne and K. Althoefer\*, "A fibre-optic catheter-tip force sensor with MRI compatibility: A feasibility study", *IEEE Engineering in Medicine and Biology Conference (EMBS)*, Minneapolis, MN, 2009, pp. 1501-1054.
- [03] D. Zbyszewski, P. Polygerinos, L. D. Seneviratne and K. Althoefer\*, "A novel MRI compatible air-cushion tactile sensor for minimally invasive surgery", *IEEE International Conference on Intelligent Robots and Systems (IROS 2009)*, St. Louis, MO, 2009, pp. 2647 - 2652.
- [02] P. Polygerinos, T. Schaeffter, L. D. Seneviratne and K. Althoefer\*, "Measuring tip and side forces of a novel catheter prototype: A feasibility study", *IEEE International Conference on Intelligent Robots and Systems (IROS 2009)*, St. Louis, MO, 2009, pp. 966 - 971.
- [01] M. Kavvousanos, G. Palamas, A. Toutountzis and P. Polygerinos\*, "The development of a greenhouse robot", *2nd IFAC International Conference on Modeling and Design of Control Systems in Agriculture (Agricontrol 2007)*, 03-05 Sept. 2007.

### **Other Publications and Abstracts:**

- [14] C. Thalman, J. Hsu, L. Snyder, P. Polygerinos\*, "A Soft Dynamic Ankle-Foot Orthosis for Foot Drop", *Wearable robotics for motion assistance and rehabilitation - RoboAssist, a Workshop in conjunction with IEEE/RSJ IROS 2018*, Madrid, Spain, 2018.
- [13] P. H. Nguyen, C. Sparks, S. G. Nuthi, N. M. Vale, P. Polygerinos\*, "Soft Poly-Limbs: Towards a New

- Paradigm of Mobile Manipulation for Daily Living Tasks”, : *Continuum and Soft Robots for medical interventions, a Workshop in conjunction with IEEE/RSJ IROS 2018*, Madrid, Spain, 2018.
- [12] C. Thalman, S. Moore, J. Hsu, L. Snyder, P. Polygerinos\*, “A Soft Dynamic Ankle-Foot Orthosis Exosuit for Gait Assistance with Foot Drop”, *Biomedical Engineering Society (BMES)*, Atlanta, 2018.
- [11] S. Sridar, P. Polygerinos\*, “Soft-Inflatable Exosuit For Knee Rehabilitation”, *IEEE International Symposium on Wearable & Rehabilitation Robotics (WeRob)*, Huston, TX, 2017.
- [10] P. H. Nguyen, P. Polygerinos\*, “The Design of a Soft Robotic Third Arm”, *IEEE International Symposium on Wearable & Rehabilitation Robotics (WeRob)*, Huston, TX, 2017.
- [09] S. Sridar, P. Polygerinos\*, “Soft Exosuit for Knee Rehabilitation”, *Biomedical Engineering Society (BMES)*, Phoenix, AZ, 2017.
- [08] P. H. Nguyen, P. Polygerinos\*, “Towards the Design of a Soft Robotic Third Arm for Assisted Living Tasks”, *Biomedical Engineering Society (BMES)*, Phoenix, AZ, 2017.
- [07] E. Rogers, P. Polygerinos, S. Allen, F. A. Panizzolo, C. J. Walsh, D. P. Holland, “A Quasi-Passive Knee Exoskeleton to Assist During Descent”, *Wearable Robotics: Challenges and Trends*, pp. 63-67, 2017.
- [06] P. Polygerinos, K. C. Galloway, R. J. Wood, C. J. Walsh, “Soft Robotic Glove for Combined Assistance and Rehabilitation for During Activities of Daily Living”, *Encyclopedia of Medical Robotics*, edited by Prof. Sunil Agrawal, Columbia University (Book Chapter), 2015.
- [05] P. Polygerinos, C. J. Walsh, “Case Study: Soft Robotic Glove for Hand Assistance”, *Wearable Robots: Biomechatronic Exoskeletons* by Jos’e L. Pons (ed.) (Book Chapter), 2014.
- [04] A. Fabozzo+, E. T. Roche+, Y. Lee+, P. Polygerinos+, L. Schuster, I. Friehs, A. C. Berazaluce, A. Bueno, N. Lang, M. J. N. Pereira , E. Feins, S. Wassermann, E. D. O’ Cearbhaill, N. V. Vasilyev, D. J. Mooney, J. M. Karp, P. J. del Nido, C. J. Walsh, “Enabling minimally invasive atraumatic repair of intracardiac septal defects with light”, *American Association for Thoracic Surgery (AATS) Annual Meeting*, 2014.
- [03] P. Polygerinos, Z. Wang, K. Galloway, J. T. B. Overvelde, R. J. Wood, K. Bertoldi and C. J. Walsh, "Soft Elastomeric Actuators with Fiber Reinforcement", Abstract and Poster presentation *in Materials and Research Society (MRS) Fall Meeting & Exhibit*, Boston, Massachusetts, Dec. 1-6, 2013.
- [02] P. Polygerinos, D. Holland, G. J. Bennett and C. J. Walsh, "Towards Educational Kits for Soft Robotics applied to Medical Device Design", Abstract and Poster presentation *in International Workshop on Soft Robotics and Morphological Computation*, Ascona, Switzerland, Jul. 14-19, 2013.
- [01] M. Kavvousanos, P. Polygerinos, G. Palamas and A. Toutountzis, 2007. “Autonomous robotic platform suitable for greenhouse works”, *Modern Technical Review magazine*, no. 186, Nov. 2007.

### **Patents and Patent Applications:**

- [19] Polygerinos, P., BIC Violex Single Member SA, 2023. Razor heads, kits, razors & methods comprising the same.  
*U.S. Patent Application 17/814,268*.
- [18] Polygerinos P., BIC SA and BIC Violex SA, 2021. Flame producing assemblies.  
*WO Patent Application WO2022248463A1*.

- [17] Polygerinos P. and Malliaros I., BIC SA and BIC Violex SA, 2022. A heat transfer assembly.  
[\*WO Patent Application WO202228939A1.\*](#)
- [16] Polygerinos, P., Duffy, D.M. and Wright, C.J., BIC SA and BIC Violex SA, 2022. Writing instrument comprising a switchable flow material.  
[\*U.S. Patent Application 17/643,425.\*](#)
- [15] Nguyen, P., Zhang, W., Polygerinos, P. and Arellano, F.L., Arizona Board of Regents of ASU, 2023. Fabric-reinforced textile actuators.  
[\*U.S. Patent 11,584,021.\*](#)
- [14] Polygerinos, P., Adams, W., Thalman, C. and Elsaad, H., Arizona board Of Regents On Behalf Of Arizona State University, 2021. Water pipe inspection robot and method of traversing a water pipe.  
[\*U.S. Patent 11,209,114.\*](#)
- [13] Polygerinos, P., Hsu, J., Moore, S. and Thalman, C., 2019. Soft dynamic ankle-foot orthosis exosuit for gait assistance with foot drop.  
[\*U.S. Patent Application 16/396,409.\*](#)
- [12] Polygerinos, P. and Nguyen, P.H., Arizona Board of Regents of ASU, 2021. Soft poly-limb systems.  
[\*U.S. Patent 11,110,597.\*](#)
- [11] Polygerinos, P., Sridar, S. and Nguyen, P.H., Arizona Board of Regents of ASU, 2022. Soft inflatable actuators for sorting applications.  
[\*U.S. Patent 11,325,163.\*](#)
- [10] Polygerinos, P., Thalman, C. and Lam, Q., Arizona Board of Regents of ASU, 2021. Assisted lifting devices.  
[\*U.S. Patent 11,103,991.\*](#)
- [9] Polygerinos, P., Sebastian, F., Fu, Q. and Santello, M., Arizona Board of Regents of ASU, 2022. Soft robotic haptic interface with variable stiffness for rehabilitation of sensorimotor hand function.  
[\*U.S. Patent 11,446,545.\*](#)
- [8] Polygerinos, P., Sridar, S., Maruyama, T., Clair, C.S. and Kwasnica, C., Arizona Board of Regents of ASU and Dignity Health, 2022. Soft inflatable exosuit for knee rehabilitation.  
[\*U.S. Patent 11,259,980.\*](#)
- [07] Zhu, M., Adams, W. and Polygerinos, P., Arizona Board of Regents of ASU, 2021. Devices for treatment of carpal tunnel syndrome.  
[\*U.S. Patent 11,185,432.\*](#)
- [06] Govin, D., Snyder, L., Polygerinos, P., Athanasaki, G. and Saenz, L., Arizona Board of Regents of ASU and Dignity Health, 2022. Apparatuses, systems, and methods for soft robotic back orthosis.  
[\*U.S. Patent 11,229,542.\*](#)
- [05] Walsh, C.J., Liu, S.H.T., Polygerinos, P. and Lieberman, D.E., Harvard College, 2018. Systems and methods for detecting overstriding in runners.  
[\*U.S. Patent 10,115,319.\*](#)
- [04] Walsh, C.J., Roche, E.T., Polygerinos, P., Schuster, L.R., Karp, J.M., Lee, Y., Del Nido, P.J., Fabozzo, A., Friehs, I. and Wasserman, S.C., Fellows Of Harvard College, 2023. Insertable catheter device for patch application.  
[\*U.S. Patent 11,627,949.\*](#)  
**[TECHNOLOGY LICENCED BY [Holistick Medical](#)]**

- [03] A. J. Harris, A. J. Moser, P. Polygerinos, and C. J. Walsh, "Soft Robotic Device with Fiber-Reinforced Actuator for Minimally Invasive Surgery", *WO Patent Application 2015157621A1*.
- [02] Galloway, K., Walsh, C., Holland, D., Polygerinos, P., Clites, T., Maeder-York, P., Neff, R., Boggs, E.M. and Dubrovsky, Z., Harvard College, 2019. Multi-segment reinforced actuators and applications. *U.S. Patent 10,184,500*.
- [01] Althoefer, K., Zbyszewski, D., Puangmali, P., Polygerinos, P. and Seneviratne, L., 2011. Air cushion sensor for tactile sensing during minimally invasive surgery. *U.S. Patent Application 12/736,957*.

### **Summary of Presentations**

- [31] P. Polygerinos, "Soft Wearable Robots" 2023, 10<sup>th</sup> Panhellenic Conference on Biomedical Technology, Thessaloniki, Greece, Oct. 2023, (Invited Speaker).
- [30] P. Polygerinos, "The Softer Side of Robots and their Wearable Applications" 2021 *Sci-Café Colloquial Talks*, HMU International Relations, (Invited Speaker).
- [29] P. Polygerinos, "The Current and Future of Robotics in Rehabilitation", *2018 Stroke Rehab Symposium*, Barrow Neurological Institute, Phoenix, AZ, USA, 2018, (Invited Speaker).
- [28] P. Polygerinos, "Soft Robot for Pipe Inspections", *Salt River Project Presentations*, Phoenix, AZ, USA, 2018, (Invited Speaker).
- [27] P. Polygerinos, "The Softer Side of Robots and their Wearable Applications", *Materials Research Society (MRS)*, Phoenix, AZ, USA, 2018, (Invited Speaker).
- [26] P. Polygerinos, "The Softer Side of Robots and their Wearable Applications", *Valley Engineering, Science and Technology Club*, Sun City West, AZ, USA, 2017, (Invited Speaker).
- [25] P. Polygerinos, "Soft Robotics", *Arizona State University – Intel presentations*, AZ, USA, 2016, (Invited Speaker).
- [24] P. Polygerinos, "Soft Robotics for combined assistance and rehabilitation", *2016 Stroke Rehab Symposium*, Barrow Neurological Institute, Phoenix, AZ, USA, 2016, (Invited Speaker).
- [23] P. Polygerinos, "Soft robots for wearable applications", *Hamlyn Symposium*, London, UK, 2016, (Invited Speaker).
- [22] P. Polygerinos, "Soft wearable robotic technologies", *Robotics and Neurorehabilitation Retreat*, Barrow Neurological Institute, AZ, USA, 2016, (Invited Speaker).
- [21] P. Polygerinos, "Overview of Research in Bio-Inspired Mechatronics Lab", *Arizona State University - Invited talk to visitors from FedEx*, AZ, 2017.
- [20] P. Polygerinos, "The Softer Side of Robots and their Wearable Applications", *Arizona State University - SHSBS Seminar Series*, Tempe, AZ, USA, 2017, (Invited Speaker).
- [19] P. Polygerinos, "Soft Robotics: Design, Sensing, and Control", *Arizona State University – EGR 598: System Modeling & Control*, AZ, USA, 2016, (Invited Speaker).

- [18] P. Polygerinos, "Overview of Research in Bio-Inspired Mechatronics Lab", *Arizona State University – Invited talk to visitors from Duke Energy*, AZ, USA, 2016, (Invited Speaker).
- [17] P. Polygerinos, "Overview of Research in Bio-Inspired Mechatronics Lab", *Arizona State University – Sun Devils Robotics Club*, AZ, USA, 2016, (Invited Speaker).
- [16] P. Polygerinos, "Soft Wearable Robotic Systems", *Arizona State University – BRAIN center*, AZ, USA, 2016, (Invited Speaker).
- [15] P. Polygerinos, "Soft Wearable Robotic Systems", *Arizona State University – Human Systems Engineering Graduate seminar series*, AZ, USA, 2016, (Invited Speaker).
- [14] P. Polygerinos, "Soft Wearable Robotic Systems", *Arizona State University – Polytechnic Robotics Faculty*, AZ, USA, 2015, (Invited Speaker).
- [13] P. Polygerinos, "Soft Wearable Robotic Systems", *Arizona State University – MAE Seminar Series*, Tempe, AZ, USA, 2015, (Invited Speaker).
- [12] P. Polygerinos, "Soft Robotic Systems to Improve Patient Care and Human Activity", *Arizona State University – Seminar*, Tempe, AZ, USA, 2015, (Invited Speaker).
- [11] P. Polygerinos, "Soft Robotic Glove to Assist Grasping", *Annual Wyss Institute for Biologically Inspired Engineering Retreat*, Boston, MA, USA, 2014, (Invited Speaker).
- [10] P. Polygerinos, "Shared Design Resources for Soft Robotics", *Annual SEAS Postdoc Recognition & Connection Event*, Harvard University, Cambridge, MA, USA, 2014, (Nominated Poster Presentation).
- [09] P. Polygerinos, "Development of Shared Design Resources for Medical Applications of Soft Robotics", *Annual IDEAS Symposium on Surgical Robotics*, Beth Israel Deaconess Medical Center (BIDMC), Boston, MA, USA, 2014, (poster presentation).
- [08] P. Polygerinos, "Soft Elastomeric Actuators with Fiber Reinforcement", *Materials Research Society (MRS) Fall Meeting & Exhibit*, Boston, MA, 2013, (poster presentation).
- [07] P. Polygerinos, "Rapid on Site Development of Soft Disposable Robots", *Robotics VO – National Robotics Initiative (NRI) PI meeting*, Arlington, VA, USA, 2013, (poster presentation).
- [06] P. Polygerinos, "Towards Educational Kits for Soft Robotics applied to Medical Device Design", *International Workshop on Soft Robotics and Morphological Computation*, ETH, Ascona Switzerland, 2013, (poster presentation).
- [05] P. Polygerinos, "Novel Miniature MRI-Compatible Fiber-Optic Force Sensor for Cardiac Catheterization Procedures", *IEEE International Conference on Robotics and Automation*, Anchorage, Alaska, USA, 2010.
- [04] P. Polygerinos, "Miniaturized MRI Compatible Force Sensing for Cardiac Catheterization procedures", *Medical Robotics: Robotic Surgery and Robotic Rehabilitation*, Royal Academy of Eng. and Reading University, UK, 2010.
- [03] P. Polygerinos, "Measuring Tip and Side Forces of a Novel Catheter Prototype: A Feasibility Study", *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2009, St. Louis, USA, (poster presentation).
- [02] P. Polygerinos, "A Fibre-Optic Catheter-Tip Force Sensor with MRI Compatibility: A Feasibility Study", *31st Annual International Conference of the IEEE EMBS*, Minneapolis, Minnesota, USA, 2009, (poster presentation).
- [01] P. Polygerinos, "MRI-compatible Miniaturized Force Sensing for Cardiac Catheterization", *4th Summer School in Surgical Robotics*, University of Montpellier 2, France, 2009.



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**PERSONEL: STUDENT SUPERVISION/MENTORING, TEACHING, DISSERTATION COMMITTEES, RESEARCHERS, AND OUTREACH**

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**Mentoring of PhD Students**

- [08] Odysseas Simatos, PhD student – Mechanical Engineering, HMU, 2023 – present, Advisor.
- [07] Moutousi Maria, PhD student – Mechanical Engineering, HMU, 2023 – present, Advisor.
- [06] Geladaris Aris, PhD student – Mechanical Engineering, HMU, 2022 – present, Advisor.
- [05] Zournatzis Ilias, PhD student – Mechanical Engineering, HMU, 2022 – present, Advisor.  
Passed Prelim exam in June 2023.
- [04] Sunny Amatya, PhD student – Systems Engineering, ASU, Fall 2018 – Spring 2019, Advisor.
- [03] Carly M. Thalman, PhD student – Systems Engineering, ASU, Fall 2017 - Spring 2019, Advisor.  
Passed Qualifying exam in Fall 2017.
- [02] Saivimal Sridar, PhD student – Systems Engineering, ASU, Fall 2016 - Spring 2019, Advisor.  
Passed Qualifying exam in Fall 2016.
- [01] Nguyen Huy Pham, PhD student – Systems Engineering, ASU, Fall 2016 - Spring 2019, Advisor.  
Passed Qualifying exam in Fall 2016.

**PhD Students Graduated as Committee Member**

- [01] Bryan D Whitsell, Mechanical Engineering, ASU, Fall 2015 – Spring 2018, Committee Member.  
PhD Thesis: “Human-Robot Interaction Utilizing Asymmetric Cooperation and the Brain”

**MS Students Graduated as Advisor**

- [07] Sai Gautham Nuthi, Masters Student – Mechanical Engineering, ASU, Fall 2017 - Spring 2018, Advisor.  
MS Thesis: “Computational Modeling and Experimental Characterization of Pneumatically Driven Actuators for the Development of a Soft Robotic Arm”
- [06] Divya Amrelia, Masters Student - Biomedical Engineering, ASU, Fall 2017, Advisor.  
MS applied project: “sEMG Analysis for Stair Climbing Using a Soft Inflatable Exosuit”
- [05] Frederick Sebastian, Masters Student – Biomedical Engineering, ASU, Fall 2017 - Spring 2018, Advisor.  
MS Thesis: “The Design and Characterization of a Soft Haptic Interface for Rehabilitation of Impaired Hand Function”
- [04] Niveditha Muthukrishna, Masters Student – Biomedical Engineering, ASU, Fall 2017 - Spring 2018, Advisor.  
MS Thesis: “Evaluation of A Soft Robotic Knee Exosuit For Assistance in Stair Ascent”



- [03] Nicholas M. Vale, Masters Student – Biomedical Engineering, ASU, Fall 2017 - Spring 2018, Advisor.  
MS Thesis: “User Intent Detection and Control of a Soft Poly-Limb”
- [02] Alexandra Hoffmann, Masters Student – Biomedical Engineering, ASU, Spring 2017, Advisor.  
MS applied project: “Design of a minimal interference knee sleeve for monitoring rehabilitation”
- [01] Mengjia Zhu, Masters Student - Materials Science and Engineering, ASU, Spring 2017, Advisor.  
MS applied project: “Soft Robotic Carpal Tunnel Syndrome Relief Device for Typing Applications”

### **MS Students Graduated as Committee Member**

- [01] Linda Fu, Masters Student – Mechanical Engineering, ASU, Spring 2018, Committee Member.  
MS applied project: “Indicators of Anticipated Walking Surface Transitions for Powered Prosthetic Control”

### **MS Students Graduated as co-Advisor**

- [03] Francisco Lopez Arellano, Masters Student – Biomedical Engineering, ASU, Fall 2018 - Spring 2019, Advisor.  
MS Thesis
- [02] Alvaro Rascon, Masters Student – Biomedical Engineering, ASU, Fall 2018 - Spring 2019, Advisor.  
MS applied project
- [01] Wade Adams, Masters Student – Engineering, ASU, Fall 2018 - Spring 2019, Advisor.  
MS Thesis

### **Undergraduate Thesis Advised**

- [10] Xydianos Dimitrios, Undergraduate student – Mechanical Engineering, HMU, 2021-2022,  
BSc Thesis: “Development of an autonomous wheeled indoor fire detection and extinguishing robot”
- [09] Xatziassimiadis Stavros, Undergraduate student – Mechanical Engineering, HMU, 2021-2022,  
BSc Thesis: “ Design, analysis and control of a biomimetic underwater robotic nautilus robot using soft actuators
- [08] Tsiprakos Dimitrios, Undergraduate student – Mechanical Engineering, HMU, 2021-2022,  
BSc Thesis: “Design, Construction and Control of a Robotic Arm for STEM Purposes”
- [07] Quoc Lam, Undergraduate student - Engineering, ASU, Fall 2017 – Spring 2018, Advisor.  
BS Honors Thesis: “Atrophy Mitigation of Long-Term Exposure to Zero-Gravity with a Soft Robotic Exosuit”
- [06] Luis Saenz, Undergraduate student – Mechanical Engineering, ASU, Fall 2016 – Spring 2017, Advisor.  
BS Honors Thesis: “Design and Evaluation of A Soft Robotic Back Orthosis”
- [05] Deven Govin, Undergraduate student – Biomedical Engineering, ASU, Fall 2016 – Spring 2017, Advisor.  
BS Honors Thesis: “Design and Evaluation of A Soft Robotic Back Orthosis”
- [04] Breanna Holmes, Undergraduate student – Mechanical Engineering, ASU, Fall 2017–Spring 2018, Commi.  
Member.  
BS Honors Thesis: “Dynamic Soft Robotic Prosthetic Socket Interface”

- [03] Caleb Carlson, Undergraduate student - Engineering, ASU, Fall 2016 – Spring 2017, Advisor.  
BS Honors Thesis: “Design and Fabrication of a Soft Robotic Nautilus”
- [02] Carly M. Thalman, Undergraduate student - Engineering, ASU, Spring 2016 – Fall 2016, Advisor.  
BS Honors Thesis: “Design of Soft Robotic Grippers for Dexterous Manipulation in the Tasks of Daily Living”
- [01] Weston R. Olson, Undergraduate student - Engineering, ASU, Fall 2015 – Spring 2016, Advisor.  
BS Honors Thesis: “A Supernumerary Wearable Soft Robotic Arm for Task Execution Assistance”

### **Additional Undergraduate Students**

- [04] Jack Gavin, Engineering, ASU, Fall 2018.  
Fulton Undergraduate Research Initiative (FURI) Award
- [03] Bryce Copenhaver, Engineering, ASU, Fall 2018 - Spring 2019.  
Independent study
- [02] Joshua Hsu, Biomedical Engineering, ASU, Fall 2018.  
KEEN Award
- [01] Imran Irfan, Engineering, ASU, Fall 2018 - Spring 2019.  
Independent study

### **Undergraduate Thesis co-Advised**

- [01] Curtis Sparks, Undergraduate student - Engineering, ASU, Fall 2018 – Spring 2019, Advisor.  
BS Honors Thesis: graduation Spring 2019.

### **High-School Visiting Students Advised**

- [01] Maximus Smith, ASU Preparatory Academy - High School, Fall 2018 – Spring 2019.

### **Undergraduate and Graduate Students Advised prior to any Professor Appointment**

- [10] Emily Rogers, undergraduate student, Harvard University, 2014-2015. (co-advised w/ Prof. Donal Holland)  
SB Thesis, “Assistive Exoskeleton for Injury Prevention During Downhill Walking”
- [09] Ting-Ting Liu, undergraduate student, Harvard University, 2014-15.  
SB Thesis: “A Wearable Gait Analysis System for Overstriding in Runners”
- [08] Emily Savage, undergraduate student, Harvard University, 2014.  
Summer research project: “Optimization Process for Soft Actuator Glove Sizing”
- [07] Emily Rogers, undergraduate student, Harvard University, 2014.  
Summer research project: “A Soft Wearable Device for Kick Sensing in Developmentally Delayed Infants”
- [06] Alex Yu, graduate student, Harvard University, 2013-14.

Research project: "Fiber reinforced actuators with dual operation"

[05] Andrew Harris, undergraduate student, Harvard University, 2013-14.

SB Thesis: "A Soft-Actuated Minimally Invasive Surgical Retractor"

[04] Emily Marie Boggs, undergraduate student, Harvard University, 2012-2013. (co-advised w/ Prof, Ellen Roche)

SB Thesis: "Design of a Delivery System for a Novel Biodegradable Patch and Biocompatible Adhesive for Ventricular Septal Defect Closure"

[03] Luis Fernando Nicolini, MEng student, The Fed. Univ. of Santa Maria, Brazil & Harvard University, 2012-13.

MEng Thesis: "Design and evaluation of a soft robotic knee brace with variable stiffness"

[02] Stacey Lyne, undergraduate student, Harvard University, 2012-13.

SB Thesis: "Soft robotic glove for hand rehabilitation"

[01] Konstantinos Vintzilaios, undergraduate student, Technological Educational Institute of Crete, Greece, 2008.

BEng Thesis: "Design and development of a webpage for the robotics laboratory of TEI of Crete"

## **Summary of Teaching**

### **Courses Taught**

10. 0813.9.012.0: Mechatronic Design, HMU, 2023- present.

9. 0813.8.012.0: Actuators for Mechatronic Systems, HMU, 2023- present.

8. 0813.7.014.0: Sensors and Measurements, HMU, 2022- present.

7. 0813.1.007.0: Introduction to Mechanical Engineering, HMU, 2021- present.

6. EGR 598: Mechatronics Device Innovation, Graduate, ASU, Spring 2018.

Teaching evaluation score for the instructor (Part 2): 4.73/5.0

5. EGR 494: Mechatronics Device Innovation, Graduate, ASU, Spring 2018.

Teaching evaluation score for the instructor (Part 2): 5.0/5.0

4. EGR 201: Use-Inspired Design Project I, Undergraduate, ASU, Fall 2017.

Teaching evaluation score for the instructor (Part 2): 4.33/5.0

3. EGR 598: Mechatronics Device Innovation, Graduate, ASU, Fall 2016.

Teaching evaluation score for the instructor (Part 2): 4.79/5.0

2. EGR 202: Use-Inspired Design Project II, Undergraduate, ASU, Spring 2015.

Teaching evaluation score for the instructor (Part 2): 4.56/5.0

1. EGR 201: Use-Inspired Design Project I, Undergraduate, ASU, Fall 2015.

Teaching evaluation score for the instructor (Part 2): 4.05/5.0

### **Teaching Experience Prior to any Professor Appointment**

7. ES227: Medical Device Design, Graduate, 2013, Harvard University, Teaching assistant.

6. 4CEEE404: Computer Engineering I, Graduate, 2011, King's College London, Teaching assistant.
5. 5CEEE506: Engineering Laboratories II, Graduate, 2010, King's College London, Teaching assistant.
4. 7CCSMCAM: Computer aided manufacturing, Graduate, 2009, King's College London, Teaching assistant.
3. 7CCSMCAD: Computer aided design, Graduate, 2008, King's College London, Teaching assistant.
2. Mechanical Engineering Design I, Undergraduate, 2007, Technological Educational Institute of Crete, Lecturer.
1. Mechatronics Design, Undergraduate, 2007, Technological Educational Institute of Crete, Lecturer.

### Outreach Activities

- Faculty mentor, AZ Loop Team, 2016/9-2017/1
- Faculty mentor, ASU Hyperloop Team, 2015/11-2016/2.
- Participant, ASU Night of the Open Doors, ASU Polytechnic campus – lab open doors, 2016, 2017, 2018.
- Co-Organizer, National Robotics Week, ASU Polytechnic campus – lab open doors, 2016, 2017, 2018.
- Co-Organizer, DiscoveryE Day, ASU Polytechnic campus – lab open doors, 2016.
- Robot Design Judge in the First® LEGO® League at Arizona State University, 2015.
- Cambridge Science Festival Robot Zoo, Project Demonstrations, 2013.
- Harvard School of Engineering and Applied Sciences (SEAS) Research Fair, 2012

### Educational initiatives:

- Soft Robotics Toolkit website (<http://www.softroboticstoolkit.com>), launched 2014, Toolkit Development Team.

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### PRESS/MEDIA COVERAGE

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<b>May 22, 2019</b>	<b>Arizona PBS:</b> Catalyst: External suit during rehabilitation <a href="#">[Web Link]</a>
<b>March 2019</b>	<b>CBS News:</b> Robots on the cutting edge of patient rehab. <a href="#">[Web Link]</a>
<b>May 1, 2018</b>	<b>Fox 10 News:</b> Our lab's joint research project with SRP and the Robotics and Intelligent Systems Lab at ASU aims at developing drones with soft graspers to collect water samples from remote SRP canals. <a href="#">Video</a>
<b>April 11, 2018</b>	<b>KJZZ 91.5:</b> A four-minute radio segment on KJZZ radio featuring Prof. Wenlong Zhang, Prof. Panagiotis Polygerinos, and Prof. Daniel Aukes talking about robotics in the SRP canals.
<b>Dec. 2017:</b>	<b>ABC15:</b> Our work on the Soft-Inflatable Exosuit was covered by <a href="#">ABC15</a> .
<b>Nov. 2017:</b>	<b>The State Press:</b> ASU Polytechnic researchers want to help stroke victims walk again.
<b>Oct. 2017:</b>	<b>12News:</b> Our research work on soft and wearable robotics has been covered by <a href="#">12News</a> .
<b>July 2017:</b>	<b>Advanced Science News:</b> Our collaborative review article on soft robotics is highlighted in Advanced Science News as one of the most downloaded and read publications in Advanced Engineering Materials over the last month (June 2017). <a href="#">[Web Link]</a>
<b>June 2017:</b>	<b>ASU Now:</b> The collaboration with Barrow Neurological Institute through the course EGR598 Mechatronics Device Innovation is featured in ASU Now. <a href="#">[Web Link]</a>
<b>June 2017:</b>	<b>Alliance of Advanced BioMedical Engineering (by ASME):</b> Our work on Soft Relief Device for Carpal Tunnel Syndrome was featured in the Alliance of Advanced BioMedical Engineering. <a href="#">[Web Link]</a>
<b>Feb. 2017:</b>	<b>ASU Now:</b> Visitors explore aviation, robotics and more at ASU's Polytechnic campus Night of the Open Door event. <a href="#">[Web Link]</a>

Jan. 2017:	<b>Science Friday radio show:</b> Dr. E. Roche of MIT and Dr. Polygerinos of ASU speak about soft robotics. <a href="#">[Web Link]</a>
Sept. 2016:	<b>Stroke Rehab Symposium, Phoenix, AZ,</b> Soft robotic glove featured in the brochure cover. <a href="#">[Web Link]</a>
Oct. 2015:	<b>Greek Reporter.com</b> "Greek Researcher In Study That May Put An End To Open Heart Surgeries [Interview]" <a href="#">[Web Link]</a>
Sept. 2015:	<b>Science Translational Medicine,</b> Journal article featured in the front cover of the magazine. <a href="#">[Web Link]</a>
June 2015:	<b>Muscular Dystrophy News Today,</b> "Harvard Wyss Institute Develops Soft Robotic Glove For Hand-Impaired Patients" <a href="#">[Web Link]</a>
June 2015:	<b>MIT Technology Review,</b> "Soft Robotic Glove Could Put Daily Life Within Patients' Grasp" <i>[Featured in the front page of MIT Tech Review's website]</i> <a href="#">[Web Link]</a>
June 2015:	<b>Wyss Institute,</b> "Soft robotic glove puts control in the grasp of hand-impaired patients". <a href="#">[Web Link]</a>
October 2014:	<b>Irish Times,</b> "Hard Challenges for Soft Robotics", editorial on the soft glove for home assistance and rehabilitation. <a href="#">[Web Link]</a>
July/Aug. 2014:	<b>Popular Mechanics,</b> issue July/ August 2014. "The Softer Side of Robots", editorial on the soft glove for home assistance and rehabilitation. <a href="#">[Web Link]</a>
April 2014:	<b>Advanced Functional Materials,</b> Volume 24, issue 15. Journal Cover for work on soft (pneunet) actuators. <a href="#">[Web Link]</a>
Jan. 2014:	<b>New Scientist,</b> "Rubbery robot fingers play piano faster than a human", (second author of work). <a href="#">[Web Link]</a>
Jan./Feb. 2014:	<b>Harvard Magazine,</b> "Wearable Robots", Soft glove for hand rehabilitation is illustrated. <a href="#">[Web Link]</a>
Nov. 2013:	<b>Wyss Institute,</b> Annual Retreat handbook, Soft glove in front cover.
Oct. 2013:	<b>Robohub.org,</b> "Robotics heavyweights keep it entertaining at 2013 Northeast Robotics Colloquium", Showcasing the soft robotic glove for hand rehabilitation. <a href="#">[Web Link]</a>
Oct. 2013:	<b>Harvard Gazette,</b> "Robots to the rescue". "Conference showcases new machines designed to improve everyday life", my work on the next-generation soft, wearable robots, that was developed to assist both the disabled and able bodied. <a href="#">[Web Link]</a>
April 2011:	<b>Typos tis Kyriakis</b> (Greek press), "Robotics in Greece", Greenhouse robot (BEng thesis) is illustrated. <a href="#">[Web Link]</a>
Sept. 2009:	<b>King's Related</b> (King's College London Magazine), "Desert island challenge", editorial on building a solar-powered desalination machine on an eco-tourist island in Fiji. <a href="#">[Web Link]</a>

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## PROFESSIONAL ACTIVITIES AND SERVICE

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### Conference Organization and/or Chairing

- Soft Robotics Design and Research Competitions Review Committee: Soft robotics toolkit competition 2018.
- General Chair (with Prof. Wenlong Zhang): 2<sup>nd</sup> SouthWest Robotics Symposium – Arizona State University 2019.
- Soft Robotics Design and Research Competitions Review Committee: Soft robotics toolkit competition 2017.
- Committee Chair: 1<sup>st</sup> SouthWest Robotics Symposium – Arizona State University 2018.

### Editorial Board

#### Associate Editor for

- Soft Robotics Journal (2016-2020)

- Frontiers in Robotics and AI – Soft Robotics (2016-present)
  - 2023 IEEE International Conference on Intelligent Robots and Systems (IROS)
  - 2019 IEEE International Conference on Robotics and Automation (ICRA)
  - 2018 IEEE International Conference on Intelligent Robots and Systems (IROS)
  - 2018 IEEE International Conference on Soft Robotics (RoboSoft)
  - 2017 IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)
  - 2017 IEEE International Conference on Rehabilitation Robotics (ICORR)
  - 2017 IEEE International Conference on Intelligent Robots and Systems (IROS)
  - 2016 IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)
  - 2015 IEEE International Conference on Rehabilitation Robotics (ICORR)

### Peer Reviewed Paper Referee

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| 16. Science Robotics                           | 8. ASME Journal of Mechanisms and Robotics     |
| 15. International Journal of Robotics Research | 7. IEEE Transactions on Biomedical Engineering |
| 14. Soft Robotics Journal                      | 6. Nature Communications                       |
| 13. Biomimetics Journal                        | 5. IEEE Transactions on Robotics               |
| 12. Robotics and Autonomous Systems Journal    | 4. IEEE/ASME Transactions on Mechatronics      |
| 11. Extreme Mechanics Letters                  | 3. IEEE Robotics and Automation Magazine       |
| 10. ASME Journal of Medical Devices            | 2. IEEE Sensors Journal                        |
| 9. ASME Medical Devices Conference             | 1. IEEE Robotics and Automation Letters        |

### Journal Reviewer for

#### Conference Reviewer for

Proceedings of the IEEE (including ICRA, IROS, ICORR, BioRob, RoboSoft)

### Research Proposal Review

- National Science Foundation (NSF)/DARE - CAREER proposals review panelist 2017
- National Science Foundation (NSF)/CMMI/DCSD proposals review panelist 2017

### Committee Services

- OMEA Member (Internal Evaluation Group - Quality Assurance), HMU – Mechanical Engineering, 2022- present.
- Internship Committee Member, HMU – Mechanical Engineering, 2023-present.
- Member, Faculty Search Committee, HMU – Mechanical Engineering, 2022-present.
- Graduate Program Committee, Masters in Robotics and Autonomous Systems, Fall 2018 – Spring 2019.
- Member, sUAS Innovation Design Challenge Committee, ASU Research Enterprise (ASURE), Fall 2017 – Fall 2018
- Member, Faculty Search Committee, Robotics, TPS, Fall 2017 - Spring 2018.

### Society Memberships

2010 – 2020	<b>American Society of Mechanical Engineers (ASME), U.S.A.</b> ASME Member (2011)
2010 – Today	<b>IEEE Robotics and Automation Society (RAS), U.S.A.</b> IEEE RAS Member
2008 – Today	<b>Institution of Electrical and Electronics Engineers (IEEE), U.S.A.</b> IEEE Member (2011), IEEE Senior Member (2020)

- This is the end of the CV.