**Curriculum Vitae**

**Oliver M. O'Reilly**
https://me.berkeley.edu/people/oliver-oreilly/

Interim Vice Provost for Undergraduate Education
Professor of Mechanical Engineering

email: oreilly@berkeley.edu

## SPECIALIZATIONS

Professor O'Reilly's interests span the fields of continuum mechanics and nonlinear dynamics. He has a broad range of specializations including directed (or Cosserat) theories of deformable bodies, constrained rigid body dynamics, contact mechanics, linear and nonlinear vibrations and linear and nonlinear dynamics of deformable bodies. He has applied these interests to a range of applications including MEMS resonators, brake squeal, the dynamics of toys, motorcycle navigation, axially moving media, artificial and natural satellites, spinal kinematics and vehicle collision dynamics. O'Reilly has co-authored over 100 archival journal articles, written three books, coauthored a book, and is a co-inventor on two patents.

## EDUCATION

Ph. D. in Theoretical and Applied Mechanics (August 1990), Cornell University, Ithaca, NY.

M. Sc. in Theoretical and Applied Mechanics (August 1988), Cornell University, Ithaca, NY.

B.E. with first class honours in Mechanical Engineering (June 1985), National University of Ireland, Galway, Ireland.

## EXPERIENCE

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| 7/2021 to Present | Interim Vice Provost for Undergraduate Education, University of California, Berkeley. |
| 9/2020 to 6/2021 | Associate Dean for Graduate Education, Division of Computing, Data Science, and Society, University of California, Berkeley. |
| 8/2019 to 8/2020 | Chair of the Berkeley Division of the Academic Senate, University of California, Berkeley. |
| 7/2018 to 8/2019 | Vice Chair of the Berkeley Division of the Academic Senate, University of California, Berkeley. |
| 9/2015 to 8/2020 | Visiting Professor, School of Mechanical and Materials Engineering, University College Dublin, Ireland |

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| 7/2003 to Present | Professor, Department of Mechanical Engineering, University of California, Berkeley. |
| 1/2009 to 6/2013 | Vice Chair for Graduate Study, Department of Mechanical Engineering, University of California, Berkeley. |
| 7/1998 to 6/2003 | Associate Professor, Department of Mechanical Engineering, University of California, Berkeley. |
| 7/1992 to 6/1998 | Assistant Professor, Department of Mechanical Engineering, University of California, Berkeley. |
| 9/1990 to 7/1992 | Postdoctoral Assistant, Institut für Mechanik, Swiss Federal Institute of Technology, Zürich, Switzerland. |
| 8/1986 to 8/1990 | Research and Teaching Assistant, Department of Theoretical and Applied Mechanics, Cornell University, New York. |

## HONORS

Hellman Family Faculty Fund Award 1995

Pi-Tau-Sigma Excellence in Teaching Awards 1997 and 1998

University of California, Berkeley Distinguished Teaching Award 1999

Pi-Tau-Sigma Professor of the Year Award 2003

Graduate Women of Etcheverry Faculty Award for Excellence in Graduate Student Mentoring 2006

Science Foundation Ireland, E.T.S. Walton Research Visitor Award (2007) in the Department of Applied Mathematics at University College Cork, Ireland.

Tau-Beta-Pi Outstanding Faculty of the Year Award 2013

Visiting Professor, September 2015 – Present, School of Mechanical and Materials Engineering, University College Dublin, Ireland.

ASME Fellow, Elected September 2015

Liviu Librescu Memorial Lecturer, February 20, 2019 at Virginia Tech.

Berkeley Faculty Service Award 2021

## PROFESSIONAL SERVICE

Founding co-editor and contributor to the online resource on mathematical representations and applications of rotations: https://rotations.berkeley.edu/

Associate Editor, *ASME Journal of Applied Mechanics* (July 2001-June 2008).

Associate Editor, *Nonlinear Dynamics* (July 2017 - Present).

Contributing Editor, *Nonlinear Dynamics* (December 2014-April 2016).

Member of the Editorial Boards of the journals *International Journal of Nonlinear Mechanics, Nonlinearity, Regular and Chaotic Dynamics*, and *Nonlinear Dynamics and Mobile Robotics*.

Co-Organizer of *Symposium on Time-Varying Systems*, ASME 16th Biennial Conference on Vibration and Noise, Sacramento, CA, September 1997.

Co-Organizer of *Symposium on Nonlinear Dynamics and Stochastics*, ASME Winter Annual Meeting, November 1997.

Served as an reviewer for over twenty journals including *Acta Mechanica*, *Journal of Elasticity*, *ASME Journal of Applied Mechanics*, *International Journal of Solids and Structures*, *International Journal of Nonlinear Mechanics*, *Nonlinear Dynamic*s, *Journal of Sound and Vibration, Journal of Vibration and Control*, *ASME Journal of Vibration and Acoustics*, *Mathematics and Mechanics of Solids, ZAMP*, *Proceedings of the Royal Society of London*, *Mechanics Research Communications*, *Journal of Vehicle System Dynamics*, *Communications in Mathematical Physics*, *Journal of Nonlinear Science*, and *Quarterly Journal of Applied Mathematics and Mechanics*. I have also served on several panels charged with reviewing proposals for the U.S. National Science Foundation, the Science Foundation of Ireland, and the Israel National Science Foundation.

## COURSES AND SEMINARS TAUGHT

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| *ME24-2: Mechanics and Movies,* | In this freshman seminar, the portrayal of, and analysis of, various scenes in movies from a mechanics perspective is discussed. The realism of action sequences is of particular interest as is the inherent difficulties encountered in simulating and animating certain scenes. |
| *ME24-2: Bears in Boats: A History Of Women and Men's Rowing at The University of California at Berkeley* | In this freshman seminar, the histories of women and and men's rowing at U.C Berkeley are explored and discussed. The source material for the seminar includes oral histories from the Bancroft Library and a wide range of books on the history of UC Berkeley, the history of rowing, and gender equity. |
| *ME 104: Engineering Mechanics II,* | This is a sophomore/junior level course on the engineering dynamics of particles and rigid bodies. |
| *ME 170: Engineering Mechanics III,* | This is a senior/first year graduate level course on the dynamics of particles and rigid bodies. It emphasizes three-dimensional motions of rigid bodies |
| *ME 175/271: Intermediate Dynamics,* | This is a senior/first year graduate level course on the dynamics of particles and rigid bodies. It emphasizes a differentio-geometric approach to Lagrange's equations of motion for systems of particles and rigid bodies. |
| *ME271: Calculus of Variations,* & Optimal Control | This is a graduate level course on the necessary and sufficient conditions for extrema and optimal control problems. |
| *ME275: Advanced Dynamics,* | This is a graduate level course on the Hamiltonian dynamics of discrete mechanical systems. |
| *ME290A: Nonlinear Dynamics of Continuous Systems* | This is a graduate level course on the nonlinear dynamics of strings and rods. In this course, the student learns modern Cosserat theories of rods and how they can be used to analyze various physical systems ranging from biological filaments to mechanical structures. |
| *ME298A: Rotations in Navigation* | This is a graduate level seminar which discusses |

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| *And Mechanics* | various representations of rotations and how they are used in mechanics and navigation. For instance, The Wahba-Davenport method of using Euler-Rodrigues parameters to obtain the optimal estimate of attitude and strapdown inertial navigation are discussed. |

## TEACHING EVALUATIONS

| *COURSE* | *SEMESTER* | *TEACHING EFFECTIVENESS (?/7.00)* | *COURSE WORTH (?/7.00)* |
|---|---|---|---|
| | | | |
| | | | |
| *ME175* | *FALL 2018* | *6.75 [6.54]* | *6.27 [5.66]* |
| | | | |
| *ME290A* | *SPRING 2018* | *6.5 [5.89]* | *6.25 [5.74]* |
| *ME104* | *SPRING 2018* | *6.53 [5.55]* | *5.99 [5.29]* |
| *ME175* | *FALL 2017* | *6.83 [5.68]* | *6.57 [5.64]* |
| | | | |
| *ME275* | *SPRING 2017* | *6.73 [5.99]* | *6.0 [5.74]* |
| *ME175* | *FALL 2016* | *6.4 3[5.93]* | *6.0 [5.79]* |
| | | | |
| *ME104* | *SPRING 2016* | *6.6 [5.4,1]* | *6.5 [5.2,1]* |
| *ME290A* | *SPRING 2016* | *6.2 [6.1,13]* | *6.6 [6.1,6]* |
| *ME175* | *FALL 2015* | *6.8 [5.9,1]* | *6.6 [5.9,1]* |
| | | | |
| *ME275* | *SPRING 2015* | *6.9 [5.8,1]* | *6.3 [5.8,9]* |
| *ME104* | *SPRING 2015* | *6.6 [5.3,1]* | *6.5 [5.1,1]* |
| *ME175* | *FALL 2014* | *6.7 [5.8,1]* | *6.7 [6.0,1]* |
| | | | |
| *ME175* | *FALL 2013* | *6.6 [6.1,3]* | *6.3 [6.1,4]* |
| | | | |
| *ME104* | *FALL 2012* | *6.3 [5.1,2]* | *5.9 [5.1,3]* |
| *ME175* | *FALL 2012* | *6.8 [5.5,2]* | *6.6 [5.7,2]* |
| | | | |
| *ME275* | *SPRING 2012* | *6.7 [6.1,4]* | *6.5 [5.8,6]* |
| *ME175* | *FALL 2011* | *6.6 [5.8,1]* | *5.9 [5.8,5]* |
| | | | |
| *ME104* | *SPRING 2011* | *6.5 [5.2,1]* | *6.2 [5.0,1]* |
| *ME275* | *FALL 2010* | *6.8 [5.89,1]* | *6.7 [5.88,2]* |
| | | | |
| *ME175* | *FALL 2009* | *6.7 [6.0, 1]* | *6.5 [6.0,2]* |
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|---|---|---|---|
| *ME104* | *SPRING 2009* | *6.6 [5.4,1]* | *6.4 [5.3,1]* |
| *ME275* | *SPRING 2009* | *6.4 [5.7,2]* | *5.9 [5.7,8]* |
| *ME175* | *FALL 2008* | *6.6 [5.7,2]* | *6.4 [5.6,1]* |
| | | | |
| *ME290A* | *SPRING 2008* | *6.8 [5.4, 1]* | *6.4 [5.5,1]* |
| *ME175* | *FALL 2007* | *6.8 [5.49, 1]* | *6.7 [5.64, 1]* |
| *ME104* | *FALL 2007* | *6.6 [5.41, 1]* | *6.6 [5.34, 1]* |
| | | | |
| *ME170* | *FALL 2006* | *6.5 [5.4, 1]* | *6.5 [5.5,1]* |
| | | | |
| *ME175* | *SPRING 2006* | *6.7 [5.6,1]* | *6.5 [5.6,1]* |
| *ME104* | *FALL 2005* | *6.5[5.1, 1]* | *6.3 [5.0, 1]* |
| | | | |
| *ME290A* | *SPRING 2005* | *7.00 [5.95,1]* | *6.5 [5.82,1]* |
| *ME170* | *FALL 2004* | *6.00 [5.69,3]* | *5.8 [5.8, 5]* |
| | | | |
| *ME175* | *SPRING 2004* | *6.6 [5.92,1]* | *6.5 [5.92,1]* |
| *ME275* | *SPRING 2004* | *6.5 [5.83,2]* | *6.2 [5.88,4]* |
| *ME104* | *FALL 2003* | *6.4 [5.28,1]* | *6.2 [5.42, 1]* |
| | | | |
| *ME170* | *FALL 2002* | *6.2 [5.78,2]* | *6.0 [5.83,2]* |
| *ME290A* | *FALL 2002* | *6.3 [5.86,3]* | *5.0 [5.75,12]* |
| | | | |
| *ME175* | *SPRING 2001* | *6.8 [5.5,1]* | *6.4 [5.7,2]* |
| *ME104* | *FALL 2000* | *6.6 [5.2, 1]* | *6.2 [5.3,1]* |
| *ME170* | *FALL 2000* | *6.1 [5.6,2]* | *5.8 [5.6,4]* |

Numbers in [ ] indicate departmental average (/7) and (when available) the ranking of this course compared to comparable courses taught in the Department of Mechanical Engineering at U. C. Berkeley during the same semester. Summaries of (anonymous) written comments and evaluations prior to 2000 available upon request.

Starting in Fall 2016, end-of-semester course evaluations were conducted using an online system. Comparative rankings were not made available.

## MASTERS STUDENTS COMMITTEES CHAIRED

Carlos Casarez (M.S. conferred 2016)

Miguel Christophy (M.S. conferred 2010)

Christopher Diamond (M.S. conferred 2013)

Paul Drazin (M.S. conferred 2013)

Nur Adila Faruk Senan (M.S. conferred 2008)

Nathaniel Goldberg (M.S. conferred 2019)

Evan Hemingway (M.S. conferred 2016)

Theresa E. Honein (M.S. conferred 2021)

Wayne Huang (M.S. conferred 2006)

Avery J. Jutkowitz (M.S. conferred 2003)

Eva A. Kanso (M.S. conferred 1999)

Patrick "Patch" Kessler (M.S. conferred 2004)

Elaine Kwan (M.S. conferred 2019)

Nathan M. Kinkaid (M.S. conferred 2001)

Todd A. Lauderdale (M.S. conferred 2001)

Tom Libby (M.S. conferred 2012)

David Aaron Moody (M.S. conferred 2009)

Thomas R. Nordenholz (M.S. conferred 1995)

Alyssa Novelia (M.S. conferred 2015)

Jeun Jye Ong (M.S. conferred 2003)

Bayram Orazov (M.S. conferred 2007)

Daniel Martinez Peters (M.S. conferred 2009)

Benjamin L. Thoma (M.S. conferred 2000)

Timothy N. Tresierras (M.S. conferred 2006)

Peter C. Varadi (M.S. conferred 1996)

## DOCTORAL STUDENTS SUPERVISED

| | |
|---|---|
| Christopher Daily-Diamond (Ph.D. conferred 2017) | *Rapid Onset Impulsive Loading: Three Dynamical Case Studies* |
| Paul Drazin (Ph.D. conferred 2017) | *Modeling and Analysis of Elements in Structural Mechanics* |
| Carlos Casarez (Ph.D. conferred 2018) | *Tail-Augmented Self-Righting and Turning of a Dynamic Legged Millirobot* |
| Nur Adila Faruk Senan (Ph.D. conferred 2011) | *The Intervertebral Joint as a Stiffness Matrix: Theory, Practice, and Application* |
| Evan G. Hemingway (Ph.D. conferred 2020) | *Cosserat Curves: Descriptions of Peristalsis and a Discrete Model* |
| Patrick Kessler (Ph.D. conferred 2007) | *On the Encirclement of Curves* |
| Hyung-Taek Kim (Ph.D. conferred 2019) | *The Dynamics of Flexible Risers Transporting Fluids in Subsea Environments* |
| Nathan M. Kinkaid (Ph.D. conferred 2005) | *On the Nonlinear Dynamics of Disc Brake Squeal* |
| Todd A. Lauderdale (Ph.D. conferred 2005) | *An Electromagnetic Rod Theory with MEMS Applications* |
| David A. Moody (Ph.D. conferred 2011) | *A Quantification of Deep Core Trunk Muscles Impact on Lumbar Lordosis and Spine Stability* |
| Thomas R. Nordenholz (Ph.D. conferred 1998) | *The Stability of Steady Motions of* |

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| | *Pseudo-Rigid Bodies* |
| Alyssa Novelia (Ph. D. conferred 2018) | *Discrete Elastic Rods for Simulating Soft Robotic Limbs* |
| Bayram Orazov (Ph.D. conferred 2011) | *A Novel Excitation Scheme for an Ocean Wave Energy Converter* |
| Daniel M. Peters (Ph.D. conferred 2011) | *Nonlinear Stability Criteria for Elastic Rod Structures* |
| Timothy N. Tresierras (Ph. D. conferred 2009) | *Modeling Plant Growth Using a Modified Elastica Theory* |
| Jeffrey S. Turcotte (Ph. D. conferred 1996) | *Approximate Theories of Elastic Rods with Applications* |
| Peter C. Varadi (Ph. D. conferred 1999) | *On the Nonlinear Stability of Rotating Rods* |
| Xuance Zhou (Ph. D. conferred 2015) | *Models and Analysis of Locomotion and Gripping in Soft Robots* |

## UNIVERSITY SERVICE

Chair Berkeley Division of the Academic Senate (’19-’20)

Vice Chair Berkeley Division of the Academic Senate (’18-’19)

Chair Academic Senate’s Committee on Teaching (’05-’06, ‘06-’07, ’16-’17, and ’17-‘18 Academic Years)

Co-Chair Academic Senate’s Committee on Teaching (’07-‘08 Academic Year)

Co-Chair Executive Committee for the Celebration of 150 Years of Women at U. C. Berkeley (’19-‘20 and ’20-‘21 Academic Years)

Co-Chair Task Force Committee for the Celebration of 150 Years of Women at U. C. Berkeley (’18-’19 Academic Year)

Chair Academic Senate’s Committee on Special Scholarships (’99-‘00 & ‘00-‘01 Academic Years)

Co-Chair Joint Administration-Senate Task Force on Teaching Evaluations (’07-’08 and ’08-‘09 Academic Years)

Co-Chair Joint Administration-Senate Task Force on Instructional Resilience (Spring Semester 2020)

Chair Student Information Systems (SIS) Faculty Advisory Committee (’16-’17 and ’17-’18 Academic Years)

Elected Member of Divisional Council of the Berkeley Division of the Academic Senate (’08-’09, ’09-’10, ’13-’14, and ’14-’15 Academic Years)

Member KALX Radio Policy Advisory Board (’00-‘01 through ‘15-‘16 Academic Years)

Member On the Same Page Advisory Committee (’13-‘14 through to ‘15-‘16 Academic Years)

Member Academic Senate’s Committee on Teaching (‘03-’04 and’04-’05 Academic Years and Fall ‘08)

Member Academic Senate’s Committee on Special Scholarships (‘98-‘99 Academic Year)

Member Academic Senate’s Graduate Student Instructor Teaching and Mentoring Task Force (Fall 2002).

Member Academic Senate's Steering Committee of the Center for Faculty Leadership and Outreach ('00-'01 Academic Year)

Member Reading and Composition Task Force ('07-'08 Academic Year)

Member College of Letters & Sciences Advisory Board for College Writing Program ('12-'13 Academic Year)

## DEPARTMENTAL & COLLEGE SERVICE

Associate Dean for Graduate Studies in the Division of Computing, Data Science, and Society ('20-'21 Academic Year)

Vice Chair for Graduate Studies ('09-'10, '10-'11,'11-'12 & '12-'13 Academic Years)

Chair Drake Scholarship Committee ('98-'99, 01'-'02 & '03-'04 Academic Years)

Chair Student Prizes Committee ('07-'08 and '08-'09 Academic Years)

Secretary of the College of Engineering Faculty ('16-'17 and '17-'18 Academic Years)

Member College of Engineering Graduate Study Committee ('09-'10, '11-'12 & '12-'13 Academic Years)

Member College of Engineering Student Relations Committee ('09-'10 Academic Year)

Member Policy Committee ('00-'01 Academic Year)

Member Drake Scholarship Committee ('08-'09 Academic Year)

Member Committee for Undergraduate Study ('93-'94 &'94-'95 Academic Years)

Member Committee on Undergraduate Admissions ('94-'95 & '16-'17 Academic Years)

Member Committee for Preliminary Examinations ('93-'94 & '97-'98 Academic Years)

Chair Committee for Preliminary Examinations ('05-'06 Academic Year)

Chair Graduate Study Committee ('09-'10, '10-'11,'11-'12 & '12-'13 Academic Years)

Chair Committee on Web & Communication ('16-'17 & '18-'19 Academic Years)

Chair Committee on Faculty Awards ('17-'18 Academic Year)

Member Committee on Seminars (’17-’18 Academic Year)

Member Committee on ABET and Undergraduate Study (’17-’18 Academic Year)

## RESEARCH GRANTS

1. **Hellman Family Faculty Fund** *A Feasible Investigation of Satellite Dynamics.* This was a one year grant which started in June 1995.
2. **California PATH:** *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety*. This was a three-year grant which started in December 1995. Professors Oliver M. O’Reilly and Panos Papadopoulos were the Co. Pis.
3. **National Science Foundation** Grant No. CMS0084808 *Mechanics of Contact with Application to Brake Squeal and Axially Moving Media*. This was a four-year grant which started on August 15, 2000. The grant monitor is Dr. Alison Flatau. Professors Oliver M. O'Reilly and Panos Papadopoulos are the Co.PIs.
4. **U. S. Army Research Office**: MEMS Strain Sensor for Roller Bearings. This was a multi-year grant which began on June 1, 2002. Oliver O'Reilly and Albert P. Pisano were the Co.PIs.
5. **Bavarian Motor Works (BMW)**: *The Development of an Inertial Measurement Unit and a Human-Machine Interface for Motorcycle Navigation Systems*. This is a three-year grant which began on January 1, 2001 and ended on December 31, 2003. J. Karl Hedrick is the original PI on this grant. O’Reilly was added as a Co. PI in June 2002.
6. **U.C. Berkeley Center for Pure and Applied Mathematics*:*** *Building/Designing a Pseudospectral Mechanism*. One-year grant for $20,000. Professors Maciej Zworski and Oliver M. O’Reilly were the Co-Principal Investigators on this award.
7. **National Science Foundation** Grant No. CMMI-0726675 *A Framework for Studying the Dynamics of the Human Spine with Application to Clinical Treatments for Back Pain*.

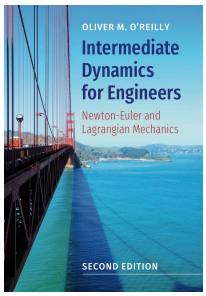
This is a four-year grant which began on August 1, 2008. The grant monitor is Dr. Eduardo Misawa. Professors Oliver M. O'Reilly and Jeffrey C. Lotz (Department of Orthopaedic Biomechanics at U.C.S.F.) were the Co-Principal Investigators on this award.

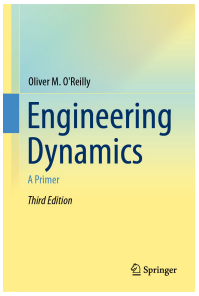
8. **KAUST-UCB Academic Alliance** *Novel Wave Energy Converters*. This is a one year grant which began on August 1, 2008. Professors Oliver M. O'Reilly and Omer Savas were the Co-Principal Investigators on this award.

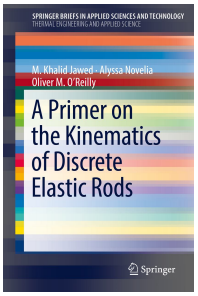
9. **National Science Foundation** Grant No. CMMI-1000906 *On the Dynamics of a Novel Ocean Wave Energy Converter*. This is a four-year grant which began on August 1, 2010. The grant monitor is Dr. Eduardo Misawa. Professors Oliver M. O'Reilly and Omer Savas along with Professors Carolyn Judge (US Naval Academy in Annapolis) and Professor N. S. Namachchivaya (University of Illinois at Urbana Champaign) are the Co-Principal Investigators on this award.

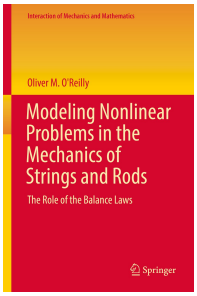
10. **Army Research Office** Grant No. W911NF-16-1-0242 ARO-*Nonlinear Dynamics and Distributed Control for Soft Robot Locomotion*. This is a three-year grant that began on May 1, 2016. The program manager is Sam Stanton. Professors Oliver M. O'Reilly along with Professors Derek Paley (University of Maryland) and Professor Carmel Majidi (Carnegie Mellon University) are the Co-Principal Investigators on this award.

## PUBLICATIONS




## PUBLICATIONS: ARCHIVAL JOURNALS

1. T. E. Honein and O. M. O'Reilly, *The Geometry of Equations of Motion: Particles in Equivalent Universes*, **Nonlinear Dynamics**, vol. 104, No. 4, pp. 2979-2994, 2021.

2. T. E. Honein and O. M. O'Reilly, *On the Gibbs-Appell Equations for the Dynamics of Rigid Bodies*, **ASME Journal of Applied Mechanics**, vol. 88, No. 7, pp. 74501, 2021.

3. N. N. Goldberg and O. M. O'Reilly, *Pervasive Nonlinear Vibrations Due to Rod-Obstacle Contact,* **Nonlinear Dynamics**, vol. 103, No. 3, pp. 2169-2181, 2021.

4. E. G. Hemingway and O. M. O'Reilly, *Continuous Models for Peristaltic Locomotion with Application to Worms and Soft Robots*, **Biomechanics and Modeling in Mechanobiology,** Vol. 20, pp. 5-30, 2021.

5. N. N. Goldberg and O. M. O'Reilly, *On Contact Point Motion in the Vibration Analysis of Elastic Rods,* **Journal of Sound and Vibration**, vol. 487, 115579, 2020.

6. E. G. Hemingway and O. M. O'Reilly, *On a Planar Theory of a Discrete Nonlinearly Elastic Rod*, **Acta Mechanica,** vol. 231, pp. 1217-1250, 2020.

7. N. N. Goldberg and O. M. O'Reilly, *Mechanics-Based Model for the Cooking-Induced Deformation of Spaghetti*, **Physical Review E**, vol. 101, No 1, pp. 013001, 2020. This paper was an "Editors Suggestion" for **Physical Review E** and featured in Physics.

8. H. -T. Kim and O. M. O'Reilly, *On the Delicate State of Instability of a Vertical Riser Transporting Fluid*, **Journal of Fluids and Structures**, vol. 29, p. 10281. 2020.

9. A. Bronars and O. M. O'Reilly, *Gliding Motions of a Rigid Body: The Curious Dynamics of Littlewood's Rolling Hoop*, **Proceedings of the Royal Society of London A: Mathematical, Physical and Engineering Sciences,** vol. 475, issue 2169, p. 20190440, 2019.

10. N. N. Goldberg, X. Huang, C. Majidi, A. Novelia, O. M. O'Reilly, D. A. Paley, and W. L. Scott, *On Planar Discrete Elastic Rod Models for the Locomotion of Soft Robots*, **Soft Robotics**, vol. 6, no. 5, pp. 595-610, 2019.

11. H. -T. Kim and O. M. O'Reilly, *Instability of Catenary-Type Flexible Risers Conveying Fluid in Subsea Environments*, **Ocean Engineering**, vol. 173, pp. 98-115 (2019).

12. P. Akella, O. M. O'Reilly, and K. Sreenath, *Controlling the Locomotion of Spherical Robots or why BB-8 Works*, **ASME Journal of Mechanisms and Robotics**, vol. 11, iss. 2, p. 24501 (2019).

13. E. G. Hemingway and O. M. O'Reilly, *Perspectives on Euler angle singularities, gimbal lock, and the orthogonality of applied forces and applied moments*, **Multibody System Dynamics**, vol. 44, iss. 1, p. 31–56, (2018).

14. C. A. Daily-Diamond, A. Novelia, and O. M. O'Reilly, *Dynamical analysis and development of a biologically inspired SMA caterpillar robot*, **Bioinspiration and Biomimetics**, vol. 21, iss. 5, p. 56005, (2017).

15. J. K. Nichols, M. Sena, J. L. Hu, O. M. O'Reilly, B. Feely, and J. C. Lotz, *A Kinect-Based Movement Assessment System: Marker Position Comparison to Vicon*, **Computer Methods in Biomechanics and Biomedical Engineering** vol. 20, iss. 12, pp. 1289-1298, (2017).

16. K. M. de Paynebrune and O. M. O'Reilly, *On the Development of Rod-Based Models for Pneumatically Actuated Soft Robot Actuators: A Five-Parameter Constitutive Relation*, **International Journal of Solids and Structures**, Vol. 120C, 226-235 (2017).

17. C. A. Daily-Diamond, C. E. Gregg and O. M. O'Reilly, *The Roles of Impact and Inertia in the Failure of a Shoelace Knot*, **Proceedings of the Royal Society of London**, Vol. 473, No. 2200 (2017).

18. J. K. Nichols and O. M. O'Reilly, *Verifying the Equivalence of Representations of the Knee Joint Moment Vector from a Drop Vertical Jump Task*, **The Knee Journal**, Vol. 24, No. 2, 484–490 (2017).

19. K. M. de Payrebrune and O. M. O'Reilly, *On Constitutive Relations for Rod-Based Models of a Pneu-Net Bending Actuator*. **Extreme Mechanics Letters**. Vol. 8, Is. C, 38–46 (2016).

20. A. Novelia and O.M. O'Reilly, *On Geodesics of the Rotation Group SO(3)*. **Regular and Chaotic Dynamics**, Vol. 20, No. 6, 729-738 (2015).

21. X. Zhou and O. M. O'Reilly, *On Adhesive and Buckling Instabilities in the Mechanics of Carbon Nanotube Bundles*. **ASME Journal of Applied Mechanics**, Vol. 82, No. 10, 101007 (2015).

22. C. A. Diamond, C. Q. Judge, B. Orazov, Ö. Savaş and O. M. O'Reilly, *Mass-Modulation*

*Schemes for a Class of Wave Energy Converters: Experiments, Models, and Efficacy*. **Ocean Engineering**, Vol. 104, 452-468 (2015).

23. X. Zhou, C. Majidi, and O. M. O'Reilly, *Soft Hands: An Analysis of Some Gripping Mechanisms in Soft Robot Design.* **International Journal of Solids and Structures**, Vol. 64-65, 155-165 (2015).

24. X. Zhou, C. Majidi, and O. M. O'Reilly, *Flexing into Motion: A Locomotion Mechanism for Soft Robots.* **International Journal of Nonlinear Mechanics**, Vol. 74, 7-17 (2015).

25. A. Novelia and O. M. O'Reilly, *On the Dynamics of the Eye: Geodesics on a Configuration Manifold, Motions of the Gaze Direction and Helmholtz's Theorem*. **Nonlinear Dynamics**, Vol. 80, No. 3, 1303-1327 (2015).

26. O. M. O'Reilly, *Some Perspectives on Eshelby-Like Forces in the Elastica Arm Scale*, **Proceedings of the Royal Society of London**, Vol. 471, p.30140785 (2015).

27. O. M. O'Reilly and A. R. Srinivasa, *A Simple Treatment of Constraint Forces and Constraint Moments in Rigid Body Dynamics,* **ASME Applied Mechanics Reviews**, Vol. 67, No. 1, 014851 (2015).

28. X. Zhou, C. Majidi, and O. M. O'Reilly, *Energy Efficiency in Friction-Based Locomotion Mechanisms for Soft and Hard Robots: Slower can be Faster,* **Nonlinear Dynamics**, Vol. 78, No. 4, 2811-2821 (2014).

29. O. M. O'Reilly, *On the Formulations of Cost Functions Featuring Components of Generalized Torques,* **Automatica**, Vol. 50, No. 10, 2723-2725 (2014).

30. O. M. O'Reilly, M. P. Sena, B. T. Feeley, and J. C. Lotz, *On Representations for Joint Moments using a Joint Coordinate System*, **ASME Journal of Biomechanical Engineering**, Vol. 135, No. 11, 114504 (2013).

31. C. Diamond, O. M. O'Reilly, and O. Savas, *The Impulsive Effects of Momentum Transfer on the Dynamics of a Novel Ocean Wave Energy Converter*, **Journal of Sound and Vibration**, Vol 332, No. 21, 5559-5565 (2013).

32. C. Majidi, O. M. O'Reilly and J. A. Williams, *Bifurcations and Instability in the Adhesion of Intrinsically Curved Rods*, **Mechanics Research Communications,** Vol. 49, 13-16 (2013).

33. N. Lingala, N. S. Namachchivaya, O. M. O'Reilly, and V. Wihstutz, *Almost Sure Asymptotic Stability Of An Oscillator With Delay Feedback When Excited by Finite-State Markov Noise*, **Probabilistic Engineering Mechanics,** Vol. 32, 21-30 (2013).

34. M. Christophy, M. Curtin, N. A. Faruk Senan, J. C. Lotz, and O. M. O'Reilly, *On the Modeling of the Intervertebral Disc in Multibody Models for the Spine*, **Multibody System Dynamics**, Vol. 30, No. 4, 413-432 (2013).

35. C. Majidi, O. M. O'Reilly and 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**, Vol. 60, No. 5, 827-843 (2012).

36. M. Christophy, N. A. Faruk Senan, J. C. Lotz, and O. M. O'Reilly, *A Muscloskeletal Model for the Lumbar Spine,* **Biomechanics and Modeling in Mechanobiology,** Vol. 11, No. 1-2, 19-34 (2012).

37. J. C. Lotz, O. M. O'Reilly and D. M. Peters, *Some Comments on the Absence of Buckling of the Ligamentous Human Spine in the Sagittal Plane*, **Mechanics Research Communications,** Vol. 40, No. 1, 11-15 (2012).

38. O. M. O'Reilly and D. M. Peters, *Nonlinear Stability Criteria for Tree-Like Structures Composed of Branched Elastic Rods*, **Proceedings of the Royal Society of London,** Vol. 468, No. 2137, pp. 206-226 (2012).

39. B. Orazov, O. M. O'Reilly, and X. Zhou, *On Forced Oscillations of a Simple Model for a Novel Wave Energy Converter: Non-Resonant Instability, Limit Cycles, and Bounded Oscillations*, **Nonlinear Dynamics,** Vol. 67, No. 2, 1135-1146 (2012).

40. O. M. O'Reilly and D. M. Peters, *On Stability Analyses of Three Classical Buckling Problems for the Elastic Strut*, **Journal of Elasticity,** Vol. 105, Nos. 1-2, 117-136 (2011).

41. L. O'Callaghan, O. M. O'Reilly and L. Zhornitskaya, *On Azimutal Shear Waves in a Transversely Isotropic Viscoelastic Mixture: Application to Diffuse Axonal Injury*, **Mathematics and Mechanics of Solids,** Vol. 16, No. 6, 625-636 (2011).

42. O. M. O'Reilly and T. N. Tresierras, *On the Static Equilibria of Branched Elastic Rods*, **International Journal of Engineering Science**, Vol. 49, No. 2, 212-227 (2010).

43. O. M. O'Reilly and T. N. Tresierras, *On the Evolution of Intrinsic Curvature in Rod-Based Models of Growth in Long Slender Plant Stems,* **International Journal of Solids and Structures**, Vol. 48, No. 9, 1239-1247 (2010).

44. M. F. Metzger, N. A. Faruk Senan, O. M. O'Reilly and J. C. Lotz, *Minimizing Errors Associated with Calculating the Helical Axis for Spinal Motions*, **Journal of Biomechanics,** Vol. 43, No. 14, 2822-2829 (2010).

45. L. L. Lattanza, T. Chu, J. M. Ty, B. Orazov, N. Strauss, O. M. O'Reilly and J. M. Buckley*, Inter and Intra-Clinician Variability in the Mechanics of the Pivot Shift Test for Posterolateral Rotatory Instability (PLRI) of the Elbow*, **Journal of Shoulder and Elbow Surgery,** Vol. 19, No. 8, 1150—1156 (2010).

46. M. F. Metzger, N. A. Faruk Senan, and O. M. O'Reilly, *On the Cartesian Stiffness Matrix in Rigid Body Dynamics: An Energetic Perspective*, **Multibody System Dynamics**, Vol. 24, No. 4, pp. 441-472 (2010).

47. B. Orazov, O. M. O'Reilly and O. Savas, *On the Dynamics of a Novel Ocean Wave Energy Converter*, **Journal of Sound and Vibration**, Vol. 329, No. 24, 5058-5069 (2010).

48. O. M. O'Reilly, M. F. Metzger, J. P. Buckley, D. A. Moody and J. C. Lotz, *On the Stiffness Matrix of the Intervertebral Joint: Application to Total Disc Replacement*. **ASME Journal of Biomechanical Engineering**, Vol.131, No. 8 (2009).

49. N. A. Faruk Senan and O. M. O'Reilly, *On the use of Quaternions and Euler-Rodrigues Symmetric Parameters with Moments and Moment Potentials*, **International Journal of Engineering Science**, Vol. 47, No. 4, pp. 595-609 (2009).

50. N. A. Faruk Senan, O. M. O'Reilly and T. N. Tresierras, *Modeling the Growth and Branching of Plants: A Simple Rod-Based Model*, **Journal of the Mechanics and Physics of Solids**, Vol. 56, No. 10, pp. 3021-3036 (2008).

51. R. Azevedo, W. Huang, O. M. O'Reilly and A. P. Pisano, *Dual-Mode Temperature Compensation for a Comb-Driven MEMS Resonant Strain Gauge.* **Sensors and Actuators: A. Physical**, Vol. 144, No. 2, pp. 374-382 (2008).

52. E. S. Lew, B. Orazov and O. M. O'Reilly, *The Dynamics of Charles F. Taylor's Remarkable One-Wheeled Vehicle*. **Regular and Chaotic Dynamics**, Vol. 13, No. 4, 257-266 (2008).

53. P. Kessler and O. M. O'Reilly, *Curve Encirclement and Protein Structure*, **Physical Review Letters**, Vol. 99, Number 15, 158103 (2007). Reprinted in **Virtual Journal of Biological Physics Research**, Vol. 14, No. 8, October 15, (2007).

54. P. Kessler, O. M. O'Reilly, A.-L. Raphael and M. Zworski, *On Dissipation-Induced Destabilization and Brake Squeal: A Structured Pseudospectral Perspective*, **Journal of Sound and Vibration**, Vol. 308, Number 1-2, pp. 1-11 (2007).

55. T. A. Lauderdale and O. M. O'Reilly, *On the Restrictions Imposed by Non-Affine Material Symmetry Groups for Elastic Rods: Application to Helical Substructures*, **European Journal of Mechanics A/Solids**, Vol. 26, No. 4, pp. 701-711 (2007).

56. O. M. O'Reilly, *The Dual Euler Basis: Constraints, Potentials and Lagrange's Equations in Rigid Body Dynamics*, **ASME Journal of Applied Mechanics**, Vol. 72, No. 2, pp. 256-258 (2007).

57. O. M. O'Reilly, *The Role of the Energy Jump Condition in the Presence of Configurational Forces*, **Continuum Mechanics and Thermodynamics**, Vol.18, No. 6, pp. 361-365 (2007).

58. O. M. O'Reilly, *A Balance Law for Material Momentum in Rods*, **Journal of Elasticity**, Vol. 86, No. 2, pp. 155-172 (2007).

59. O. M. O'Reilly and S. Payen, *The Attitudes of Constant Angular Velocity Motions*, **International Journal of Non-Linear Mechanics**, Vol. 41, Issues 6-7, pp. 787-795 (2006).

60. T. A. Lauderdale and O. M. O'Reilly, *On Transverse and Rotational Symmetries in Elastic Rods*, **Journal of Elasticity**, Vol. 82, No. 1, pp.31-47 (2006).

61. J. Casey and O. M. O'Reilly, *Geometrical Derivation of Lagrange's Equations of Motion for a System of Rigid Bodies,* **Mathematics and Mechanics of Solids**, Vol. 11, No. 4, pp. 401-422 (2006).

62. T. A. Lauderdale and O. M. O'Reilly, *Modeling MEMS Resonators with Rod-like Components Accounting for Anisotropy, Temperature and Strain Dependencies,* **International Journal of Solids and Structures**, Vol. 42, No. 26, pp. 6523-6549 (2005).

63. N. M. Kinkaid, O. M. O'Reilly, and P. Papadopoulos *On the Transient Dynamics of a Multi-Degree-of-Freedom Friction Oscillator: A New Mechanism for Brake Noise***, Journal of Sound and Vibration**, Vol. 287, Issue 4-5, pp. 901-917 (2005).

64. J. P. Coaplen, P. Kessler, O. M. O'Reilly, D. M. Stevens and J. K. Hedrick, *On Navigation Systems for Motorcycles. The Influence and Estimation of Roll Angle*, **Journal of Navigation**, Vol. 58, No. 3, pp. 375-388 (2005).

65. T. A. Lauderdale and O. M. O'Reilly, *A Method for Relaxing Parameter Constraints in Rigid Body Dynamics*, **International Journal of Nonlinear Mechanics**, Vol. 40, No. 5, pp. 715-727 (2005).

66. J. J. Ong and O. M. O'Reilly, *On the Equations of Motion for Rigid Bodies with Surface Growth*, **International Journal of Engineering Science**, Vol. 42, Nos. 11-12, pp. 2159-2174 (2004).

67. O. M. O'Reilly and P. C. Varadi, *On Some Peculiar Aspects of Axial Motions of Closed Loops of String in the Presence of a Singular Supply of Momentum***, ASME Journal of Applied Mechanics**, Vol. 71, No. 4, pp. 541-545 (2004).

68. O. M. O'Reilly and P. C. Varadi, *On Energetics and Conservations for Strings in the Presence of Singular Sources of Momentum and Energy,* **Acta Mechanica,** Vol. 165, Nos. 1-2 , pp. 27-45 (2003).

69. O. M. O'Reilly and M. H. Tan, *Steady Motions of an Axisymmetric Satellite: An Atlas of Their Bifurcations*, **International Journal of Non-linear Mechanics**, Vol. 39, No. 6, pp. 921-940 (2004).

70. W. O. Davis, O. M. O'Reilly and A. P. Pisano, *On the Nonlinear Dynamics of Tether Suspensions for MEMS*, **ASME Journal of Vibration and Acoustics**, Vol. 126, No. 3, pp. 326-331 (2004).

71. N. M. Kinkaid, O. M. O'Reilly and P. Papadopoulos, *Automotive Disc Brake Squeal: A Review*, **Journal of Sound and Vibration**, Vol. 267, No. 1, pp. 105-166 (2003).

72. O. M. O'Reilly and B. L. Thoma, *On the Dynamics of a Deformable Satellite in the Gravitational Field of a Spherical Rigid Body*, **Celestial Mechanics and Dynamical Astronomy**, Vol. 86, No. 1, pp. 1-28 (2003).

73. P. Kessler and O. M. O'Reilly, *The Ringing of Euler's Disk*, **Regular and Chaotic Dynamics**, Vol. 7, pp. 49-60 (2002). A Russian translation of this paper was published in **Nelinejnaa Dinamika**, Vol. 1, No. 2, pp. 247—260 (2005).

74. O. M. O'Reilly and A. R. Srinivasa, *On Potential Energies and Constraints in the Dynamics of Rigid Bodies and Particles*, **Mathematical Problems in Engineering**, Vol. 8, No. 3, pp. 169-180 (2002).

75. N. M. Kinkaid, and O. M. O'Reilly, *Pulling Apart a Press-Fitted Joint*, **Mathematics and Mechanics of Solids**, Vol. 7, No. 3, pp. 307-318 (2002).

76. O. M. O'Reilly, *On Coupled Longitudinal and Lateral Vibrations of Elastic Rods*, **Journal of Sound and Vibration**, Vol. 247, pp. 835-856 (2001).

77. N. M. Kinkaid, O. M. O'Reilly and J. S. Turcotte, *On Steady Motions of a Rotating Elastic Rod*, **ASME Journal of Applied Mechanics**, Vol. 68, pp. 766-771 (2001).

78. O. M. O'Reilly and A. S. Srinivasa, *On a Decomposition of Generalized Constraint Forces,* **Proceedings of the Royal Society of London**, Vol. 457A, pp. 1307-1313 (2001).

79. T. R. Nordenholz and O. M. O'Reilly, *A Class of Motions of Elastic, Symmetric Cosserat Points: Existence, Bifurcation, and Stability*, **International Journal of Non-Linear Mechanics**, Vol. 36, pp. 353-374 (2001).

80. C. Luo and O. M. O'Reilly, *On the Material Symmetry of Elastic Rods,* **Journal of Elasticity**, Vol. 60, pp. 35-56 (2000).

81. D. W. Gulick and O. M. O'Reilly, *On the Dynamics of the Dynabee,* **ASME Journal of Applied Mechanics**, Vol. 67, pp. 321-325 (2000).

82. O. M. O'Reilly and P. C. Varadi, *Hoberman's Sphere, Euler Parameters and Lagrange's Equations,* **Journal of Elasticity**, Vol. 56, pp. 171-180 (1999).

83. P. C. Varadi, G.-J. Lo, O. M. O'Reilly and P. Papadopoulos, *A Novel Approach to Vehicle Dynamics using the Theory of a Cosserat point and its Application to Collision Analyses of Platooning Vehicles,* **Vehicle System Dynamics**, Vol. 32, pp. 85-108 (1999).

84. O. M. O'Reilly and P. C. Varadi, *A Treatment of Shocks in One-Dimensional Thermomechanical Media,* **Continuum Mechanics and Thermodynamics**, Vol. 11, pp. 339-352 (1999).

85. T. R. Nordenholz and O. M. O'Reilly, *On the Existence of a Stretch for a Prescribed Stress in Isotropic, Incompressible Elastic Bodies*, **Mathematics and Mechanics of Solids**, Vol. 3, pp. 169-181 (1998).

86. O. M. O'Reilly and P. C. Varadi, *A Unified Treatment of Constraints in the Theory of a Cosserat Point,* **Journal of Applied Mathematics and Physics (ZAMP)**, Vol. 49, pp. 205-223 (1998).

87. T. R. Nordenholz and O. M. O'Reilly, *On Steady Motions of Isotropic, Elastic Cosserat Points*, **IMA Journal of Applied Mathematics**, Vol. 60, pp. 55-72 (1998).

88. O. M. O'Reilly, *On Constitutive Relations for Elastic Rods*, **International Journal of Solids and Structures**, Vol. 35, pp. 1009-1024 (1998).

89. O. M. O'Reilly, *On the Computation of Relative Rotations and Geometric Phases in the Motions of Rigid Bodies*, **ASME Journal of Applied Mechanics**, Vol. 64, pp. 969-974 (1997).

90. O. M. O'Reilly and J. S. Turcotte, *Elastic Rods with Moderate Rotation,* **Journal of Elasticity**, Vol. 48, pp. 195-216 (1997).

91. T. R. Nordenholz and O. M. O'Reilly, *On Steady Motions of an Elastic Rod with Application to Contact Problems,* **International Journal of Solids and Structures**, Vol. 34, pp. 1123-1143 and 3211-3212 (1997).

92. O. M. O'Reilly and J. S. Turcotte, *Another Mode of Vibration in a Timoshenko Beam,* **Journal of Sound and Vibration**, Vol. 198, pp. 517-521 (1996).

93. O. M. O'Reilly and J. S. Turcotte, *Some Remarks on Invariance Requirements for Constrained Rods*, **Mathematics and Mechanics of Solids**, Vol. 1, pp. 343-348 (1996).

94. O. M. O'Reilly and B. H. Tongue, *Some Comments On Vehicle Instability Due to Brake Lockup*, **Journal of Sound and Vibration**, Vol. 194, pp. 760-765 (1996).

95. O. M. O'Reilly, *The Dynamics of Rolling Disks and Sliding Disks,* **Nonlinear Dynamics**, Vol. 10, pp. 287-305 (1996).

96. O. M. O'Reilly, N. K. Malhotra and N. S. Namachchivaya, *Some Aspects of Destabilization of the Equilibria of Reversible Dynamical Systems with Application to Follower Forces*, **Nonlinear Dynamics**, Vol. 10, pp. 63-87 (1996).

97. O. M. O'Reilly, *A Properly Invariant Theory of Infinitesimal Deformations of an Elastic Cosserat Point*, **Journal of Applied Mathematics and Physics (ZAMP)**, Vol. 47, pp. 179-193 (1996).

98. O. M. O'Reilly, *Steady Motions of a Drawn Cable*, **ASME Journal of Applied Mechanics**, Vol. 63, pp. 180-189 (1996).

99. T. R. Nordenholz and O. M. O'Reilly, *On Kinematical Conditions for the Steady Motions of Strings and Rods,* **ASME Journal of Applied Mechanics**, Vol. 62, pp. 820-822 (1995).

100. O. M. O'Reilly, *A Properly Invariant Theory of Small Deformations Superposed on Large Deformations of an Elastic Rod,* **Journal of Elasticity**, Vol. 39, pp. 97-131 (1995).

101. O. M. O'Reilly and P. Varadi, *Elastic Equilibria of Translating Cables,* **Acta Mechanica**, Vol. 108, pp. 189-206, (1995).

102. J. Dual and O. M. O'Reilly, *Resonant Torsional Vibrations: An Application to Dynamic Viscometry*. **Archive of Applied Mechanics**, Vol. 63, pp. 437-451 (1993).

103. O. M. O'Reilly, *Global Bifurcations in the Forced Vibration of a Damped String*, **International Journal of Non-Linear Mechanics**, Vol. 28, pp. 337-351 (1993).

104. O. O'Reilly and P.J. Holmes, *Non-linear, Non-planar and Non-periodic Vibrations of a String*, **Journal of Sound and Vibration,** Vol. 153, pp. 413-435 (1992) (*Errata* Vol. 159, p. 571.)

105. A. Mielke, P. Holmes and O. O'Reilly, *Cascades of Homoclinic Orbits to, and Chaos near, a Hamiltonian Saddle-Center*, **Journal of Dynamics and Differential Equations,** Vol. 4, pp. 95-126 (1992).

## REFEREED PUBLICATIONS: CONFERENCE PROCEEDINGS

106. O. M. O'Reilly and J. S. Turcotte, *On the free vibrations of a whirling rod*. **Proceedings of DETC'97**: 1997 ASME Design Engineering Technical Conferences, September 14-17, 1997, Sacramento, California. Paper No. DETC97VIB4072.

107. J. M. Buckley, M. F. Metzger, D. Bradford, J. C. Lotz and O. M. O'Reilly, *How Accurately can we Measure the Instantaneous Axis of Rotation?* Paper PA-TH17. Extended abstract on page 19 of the Abstract Book of **Spine Arthroplasty Society Global Symposium on Motion Preservation Technology: 7th Annual Meeting (SAS7 Berlin), Berlin, Germany, May 1.-May 4, 2007.**

108. M. F. Metzger, J. M. Buckley, O. M. O'Reilly and J. C. Lotz, *A Novel Method for Measuring the In-Situ Structural Rigidity of Total Disc Replacement Systems.* Paper PA-TH16 Extended abstract on page 19 of the Abstract Book of **Spine Arthroplasty Society Global Symposium on Motion Preservation Technology: 7th Annual Meeting (SAS7 Berlin), Berlin, Germany, May 1.-May 4, 2007.**

109. K. M. de Payrebrune and O. M. O'Reilly, "An experimentally validated rod model for soft continuum robots," **Proceedings in Applied Mathematics and Mechanics (PAMM)**, vol. 16, iss. 1, p. 317–318, 2016.

110. K. M. de Payrebrune and O. M. O'Reilly, "Numerical Investigation of a Walking Soft Robot," **Proceedings in Applied Mathematics and Mechanics (PAMM)**, vol. 17, iss. 1, pp. 339-340, 2017.

111. H. -T. Kim and O. M. O'Reilly *"On the Effects of a Buoyancy Module on the Dynamics of Flexible Risers Transporting Fluid,"* In the **29th International Offshore and Polar Engineering Conference, 16-21 June, Honolulu, Hi, USA**. Vol. 2, pages 1824-1831 The International Society of Offshore and Polar Engineers, 2019.

## NONREFEREED PUBLICATIONS: ARCHIVAL JOURNALS AND CONFERENCE PROCEEDINGS

112. M. Metzger, N. A. Faruk Senan, O. O'Reilly, and J. Lotz, 2010, *Minimizing Errors Associated with Calculating the Helical Axis of Spinal Motion*, Poster Presentation No. 1515, Orthopaedic Research Society 56th Annual Meeting, New Orleans, Louisiana, March 6--9, 2010.

113. N. A. Faruk Senan, David A. Moody, O. M. O'Reilly, D. M. Peters, J. C. Lotz and M. F. Metzger, *Towards Mechanical Characterizations of Back Pain and its Therapies*, NSF CMMI Grantees Conference, Honolulu, Hawaii, June 22-June 25, 2009. Paper Number 0726675.

114. T. Chu, J. M. Ty, B. Orazov, N. Strauss, O. M. O'Reilly, J. M. Buckley, and L. L. Lattanza, 2009, *Surgeon experience level affects mechanics of the pivot shift test for posterolateral rotatory instability of the elbow*, Presented at the ASME Summer Bioengineering Conference (SBC) in Lake Tahoe, California, June 17--21. Paper Number SBC2009-206560.

115. N. A. Faruk Senan and O. M. O'Reilly, *On the use of Quaternions to Measure the Stiffness Matrix of a Vertebral Motion Segment*, ASME 2009 Summer Bioengineering Conference (SBC2009), Resort at Squaw Creek, Lake Tahoe, CA, June 17-June 21, 2009. Paper Number SBC2009-206663.

116. O. M. O'Reilly and T. N. Tresierras, *An Evolution Equation for Plant Growth*, ASME 2009 Summer Bioengineering Conference (SBC2009), Resort at Squaw Creek, Lake Tahoe, CA, June 17-June 21, 2009. Paper Number SBC2009-206770.

117. L. L. Lattanza, T. Chu, J. M. Ty, B. Orazov, N. Strauss, O. M. O'Reilly and J. M. Buckley, 2009, *Surgeon Experience Level Affects Mechanics of the Pivot Shift Test for Posterolateral Rotatory Instability of the Elbow*, Poster No. 1870, Presented at the Orthopaedic Research Society's 55th Annual Meeting in Las Vegas Nevada, February 22—25 (2009).

118. M. F. Metzger, N. A. Faruk Senan, J. C. Lotz and O. M. O'Reilly, *Revisiting the Stiffness Matrix with an Application to Total Disc Replacement Systems,* in **Proceedings of the 23rd Annual Meeting of the North American Spine Society, NASS 24th Annual Meeting** held in Toronto, Ontario, Canada, 15-18 October 2008 published in **The Spine Journal** Vol. 5, No. 1, page 165S (2008).

119. R. . G. Azevedo, I. Chen, O. M. O'Reilly, and A. P. Pisano, *Influence of Sensor Substrate Geometry on the Sensitivity of MEMS Microextensiometers*. **Proceedings of IMECE2005** (2005 ASME International Mechanical Engineering Congress and Exposition, November 5-11, 2005, Orlando, Florida USA) Paper Number IMECE2005-82724.

120. W. O. Davis, A. P. Pisano and O. M. O'Reilly, *Nonlinear Elastic Coupling in Tether-Suspended MEMS.* **Proceedings of the IEEE: 18th Annual International Conference on Micro Electro Mechanical Systems, (MEMS 2005), Miami, Florida, Jan 30.-Feb 3, 2005.** pages 129-132.

121. B. Bircumshaw, G. Lui, H. Takeuchi, T.-J. King, R. Howe, O. O'Reilly and A. P. Pisano,*The Radial Bulk Annular Resonator: Towards a 50Omega RF MEMS Filter.* **Transducers '03: The 12th International Conference on Solid-State Sensors, Actuators and Microsystems: Boston, June 8-12, 2003.** *Technical Digest of Papers* Vol. 1, pages 875-878, Paper No. 2E120.P (2003). Published by the IEEE and EDS (IEEE-Catalog No. 03TH8664).

122. O. M. O'Reilly and P. C. Varadi, *A Treatment of Shocks in Thermoelastic Rods.* **Finite Thermoelasticity**, Edited by J. Casey and R. Abeyaratne, ASME AMD-Vol. 236, pp. 105-115, 1999.

123. O. M. O'Reilly and P. C. Varadi, *A Traveler's Woes: Some Perspectives from Dynamical Systems, in* **IUTAM Symposium on New Applications of Nonlinear and Chaotic Dynamics in Mechanics**, Edited by F. C. Moon, pp. 397-406. Kluwer Academic Publishing, Dordrecht, 1999.

124. O. M. O'Reilly, N. K. Malhotra and N. S. Namachchivaya, *Reversible Dynamical Systems, Dissipation Induced Destabilization and Follower Forces,* **Applied Mathematics and Computation**, Vol. 70, pp. 273-282, (1995).

125. J. Marsden, O.M. O'Reilly, F.J. Wicklin and B.W. Zombro, *Symmetry, Stability, Geometric Phases and Mechanical Integrators.* **Nonlinear Science Today** (Part 1): Vol. 1, No. 1 pp. 4-11and (Part 2): Vol. 1, No. 2 pp. 14-21 (1991).

## PUBLICATIONS: TECHNICAL REPORTS AND EDITED PROCEEDINGS

126. E. G. Hemingway and O. M. O'Reilly, *Some Surprising Conservative and Nonconservative Moments in the Dynamics of Rods and Rigid Bodies*, in *Dynamic Stability and Bifurcation in Nonconservative Mechanics*, D. Bigoni and O. Kirillov, Eds., Cham: Springer International Publishing, 2019, p. 103–127.

127. H. Dankowitz and O. M. O'Reilly, *Introduction*, **ASME Journal of Computational and Nonlinear Dynamics**, Vol. 1, No. 4, pp. 271-274 (2006).

128. O. M. O'Reilly, P. Papadopoulos, G.-J. Lo and P. C. Varadi, *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety V: MEDUSA: Theory, Examples, User's Manual, Programmer's Guide and Code.* **California PATH Research Report** UCB-ITS-PRR-99-32, 1999.

129. W. W. Clark, W. C. Xie, D. Allaei, Y. F. Hwang, N. S. Namachchivaya and O. M. O'Reilly, *Active/Passive Vibration Control and Nonlinear Dynamics of Structures.* ASME AMD-Vol. 223 (DE-Vol. 95) 1997.

130. O. M. O'Reilly, P. Papadopoulos, G.-J. Lo and P. C. Varadi, *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety IV: An Improved Algorithm for Detecting Contact Between Vehicles.* **California PATH Research Report** UCB-ITS-PRR-98-25, 1998.

131. O. M. O'Reilly, P. Papadopoulos, G.-J. Lo and P. C. Varadi, *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety III: Computer Code, Programmer's Guide and User Manual for MEDUSA.* **California PATH Research Report** UCB-ITS-PRR-98-10, 1998.

132. O. M. O'Reilly, P. Papadopoulos, G.-J. Lo and P. C. Varadi, *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety II: On the Modeling of Collisions between Vehicles in a Platoon System.* **California PATH Research Report** UCB-ITS-PRR-97-34, 1997.

133. O. M. O'Reilly, P. Papadopoulos, G.-J. Lo and P. C. Varadi, *Models of Vehicular Collision: Development and Simulation with Emphasis on Safety I: Development of a Model for a Single Vehicle.* **California PATH Research Report** UCB-ITS-PRR-97-15, 1997.

## BOOKS

134. O. M. O'Reilly, *Engineering Dynamics: A Primer,* Springer-Verlag, New York, 2001.

135. O. M. O'Reilly, *Engineering Dynamics: A Primer, Second Edition,* Springer-Verlag, New York, 2010. The first edition of this book appeared in 2001.

136. O. M. O'Reilly, *Intermediate Engineering Dynamics: A Unified Approach to Newton-Euler and Lagrangian Dynamics*, Cambridge University Press, New York, 2008. A Russian translation of this book was published in 2011 and can be accessed at http://www.rcd.ru/

137. O. M. O'Reilly, *Modeling Nonlinear Problems in the Mechanics of Strings and Rods*, Springer-Verlag, New York, 2017.

138. M. K. Jawed, A. Novelia and O. M. O'Reilly, *A Primer on the Kinematics of Discrete Elastic Rods,* Springer-Verlag, New York, 2018.

139. O. M. O'Reilly, *Engineering Dynamics: A Primer,* Third Edition, Springer-Verlag, New York, 2019.

140. O. M. O'Reilly, *Intermediate Engineering Dynamics: Newton-Euler and Lagrangian Dynamics,* Second Edition, Cambridge University Press, New York, 2020.

## PATENTS

141. B. L. Bircumshaw, A. P. Pisano and O. M. O'Reilly, *Radial Bulk Annular Resonator using MEMS Technology*, U.S. Patent No. 6,894,586 (Issued May 17, 2005).

142. B. L. Bircumshaw, O. M. O'Reilly and A. P. Pisano, *MEMS Resonator and Method of Making Same*, U.S. Patent No. 6,940,370 (Issued September 6, 2005).