Alberto Rodriguez

Associate Professor

MIT, Department of Mechanical Engineering, Room 5-207d
77 Massachusetts Ave, Cambridge, MA 02139, USA
albertor@mit.edu ● http://mcube.mit.edu

PROFESSIONAL APPOINTMENTS

Massachusetts Institute of Technology

2021 - present	Associate Professor with tenure (AWIT), Department of Mechanical Engineering
2020 - present	Class of 1957 Career Development Professor
2019 - 2020	Associate Professor without tenure (AWOT), Department of Mechanical Engineering
2016 - 2019	Walter Henry Gale (1929) Career Development Professor
2014 - 2018	Assistant Professor, Department of Mechanical Engineering

Other

Summer 2009	Research Intern, ABB US Corporate Research Center, Windsor, CT, USA
2004 - 2006	Research Assistant, UPC, Department of Automatic Control, ESAII, Barcelona, Spain

EDUCATION

2014	Postdoc, MIT (advised by Prof. Russ Tedrake)
2013	PhD Robotics, CMU, Thesis "Shape for Contact" (advised by Prof. Matthew Mason)
2006	Degree in Telecommunications Engineering, UPC
2005	Degree in Mathematics, UPC

AWARDS AND HONORS

Paper Awards

2021 ICRA	Best Conference Paper Award
	Extrinsic Contact Sensing with Relative-Motion Tracking from Distributed Tactile Measurements
2021 ICRA	Finalist Best Paper Award in Service Robotics
	Tactile SLAM: Real-time inference of shape and pose from planar pushing
2020 TRO	2020 IEEE Transactions on Robotics King-Sun Fu Memorial Best Paper Award
	TossingBot: Learning to Throw Arbitrary Objects with Residual Physics
2020 RSS	Best Paper Award Finalist
	Cable Manipulation with a Tactile-Reactive Gripper
2020 ICRA	Best Manipulation Paper Award Finalist
	Tactile Dexterity: Manipulation Primitives with Tactile Feedback
2019 RSS	Best Systems Paper Award
	TossingBot: Learning to Throw Arbitrary Objects with Residual Physics
2018 IROS	Best Cognitive Paper Award
	Augmenting Physical Simulators with Stochastic Neural Networks: Case Study of Planar Pushing and Bouncing
2018 IROS	Best Cognitive Paper Award Finalist
	Learning Synergies between Pushing and Grasping with Self-Supervised Deep Reinforcement Learning
2018 Amazon	Best Systems Paper Award in Manipulation
	Robotic Pick-And-Place of Novel Objects in Clutter with Multi-Affordance Grasping and Cross-Domain Image Matching
2018 Amazon	Best Technical Paper Award in Manipulation Finalist
	GelSlim: A High-Resolution, Compact, Robust, and Calibrated Tactile-sensing Finger
2018 RSS	Best Student Paper Award
	In-Hand Manipulation via Motion Cones

2016 IROS	Best Paper Award Finalist
	More than a Million Ways to be Pushed: A High-Fidelity Experimental Data Set of Planar Pushing
2014 ICRA	Best Video Award Finalist
	Regrasping Objects with Extrinsic Dexterity
2013 ICRA	Best Student Paper Award
	Effector Form Design for 1DOF Planar Actuation
2011 RSS	Best Student Paper Award
	From Caging to Grasping

Other Awards

2020	IEEE Early Academic Career Award in Robotics and Automation
	"For contributions to dexterous robot manipulation".
2020	Class of 1957 Career Development Professorship.
	"This professorship recognizes innovative and imaginative teaching".
2020	Google Faculty Research Award.
2020-18	Amazon Faculty Research Award 2020, 2019, 2018.
2017	Amazon Robotics Challenge 2017, Stowing task, 1st place.
2016	Walter Henry Gale (1929) Career Development Professorship.
2016	Amazon Picking Challenge 2016, 3rd and 4th place.
2015	Amazon Picking Challenge 2015, 2nd place.

LEADERSHIP AND SERVICE ACTIVITIES

Massachusetts Institute of Technology

2021	MIT, Re-imagining Public Safety at MIT Working Group.
2021	MIT, MechE, General Faculty Search committee.
2020	MIT, MechE, Committee Strategic Integration of Data Science in Mech. Eng.
2020	MIT, Team 2020, Evaluating MIT's options for Fall semester in light of COVID-19.
2020 - 2021	MIT, Housing, COVID-19 Policies committee.
2019	MIT, Housing, Policies committee.
2018 - present	MIT, Robotics, Lead MIT Robotics Seminar and fundraising for MIT Robotics.
2016 - present	MIT, Housing, Associate Head of House in graduate dorm Sydney-Pacific.
2013 - present	MIT, MechE, Graduate Admissions Committee.
2016	MIT, MechE, Controls and Dynamics Curriculum Revision Committee.

Robotics Community

2021 - present	CESAR: IEEE Committee to Explore Synergies in Automation and Robotics
2021 - present	RSS Sponsorship chair
2020 - present	Co-created "Robotics Today" (http://roboticstoday.github.io)
	Open virtual series of technical talks in robotics.
2020 - 2019	RSS Area chair for Manipulation
2016	Co-editor IEEE RAM "Open Source and Widely-Disseminated Robot Hardware".
—	Program committee at ISRR 2019, RSS 2018-14, WAFR 2018-16 and ISER 2014.

Workshop Organization

2021	RSS 2021 "Advancing Artificial Intelligence and Manipulation for Robotics: Understanding Gaps, Industry and Academic Perspectives, and Community Building"
2018	ICRA 2018 "Advances in Robotic Warehouse Automation"
2017	RSS 2017 "Empirically Data-driven Robotic Manipulation"
2017	ICRA 2017 "Warehouse Picking Automation Workshop 2017: Solutions, Experience, Learnings and Outlook of the Amazon Picking Challenge"
2016	CASE 2016 "Automation for Warehouse Logistics"
2015	NSF "Locomotion and Manipulation: Why the Great Divide?"
2013	ICRA 2013 "Caging and its Applications in Grasping/Multi-agent Cooperation."
2013	RSS 2013 "Common Platforms in Robotic Manipulation."

TEACHING EXPERIENCE

2021 Spring	2.003 Dynamics and Controls I - lead instructor
2020 Fall	2.003 Dynamics and Controls I - lead instructor
2020 Spring	2.003 Dynamics and Controls I - lead instructor
2019 Spring	2.003 Dynamics and Controls I - lead instructor
2018 Fall	2.003 Dynamics and Controls I - lead instructor
2018 Spring	2.003 Dynamics and Controls I - lead instructor
2017 Fall	2.003 Dynamics and Controls I
2017 Spring	2.003 Dynamics and Controls I
2016 Fall	2.12 Introduction to Robotics - co-lead instructor
2016 Spring	2.003 Dynamics and Controls I
2015 Fall	2.003 Dynamics and Controls I - co-lead instructor
2015 Spring	2.003 Dynamics and Controls I - co-lead instructor
2014 Fall	2.003 Dynamics and Controls I

INTELLECTUAL PROPERTY

2021 May	Patent (pending) "Tactile Dexterity and Control" Publication numbers: US20210146532-A1, WO2021097166-A1
2020 Feb	Patent (pending) "Robotic Manipulation of Objects Using External Contacts" Publication numbers: US20200055152-A1, WO2020041120-A1
2020 Feb	Patent "Robotic Manipulation of Objects for Grip Adjustment" Publication numbers: US20200055680-A1, WO2020041117-A1
2020 Feb	Patent (pending)"Shape-Shifting Fingers for Robotic Grippers" Publication numbers: US20200055197-A1, WO2020041116
2017 Feb	Patent (issued) "Two-Phase Gripper to Reorient and Grasp" Publication number: US9808936-B2
2014 Oct	Patent (issued) "Method and Apparatus for Using Post Assembly Process Interaction Signatures to Detect Assembly Failures" Publication numbers: WO2014160760-A3, CN105229548-A

PUBLICATIONS UNDER REVIEW

[J22]	2021 IJRR	*A Convex-Combinatorial Model for Planar Caging* Aceituno-Cabezas B., H. Dai, A. Varava and A. Rodriguez
[J21]	2021 IJRR	*Certified Grasping* Aceituno-Cabezas B., J. Ballester and A. Rodriguez
[J20]	2021 TRO	*Tactile Dexterity: Manipulation Primitives with Tactile Feedback* Hogan, F., A. Simeonov, J. Ballester, S. Dong and A. Rodriguez

PUBLICATIONS

Edited Books

[B1]	2020 Springer	*Advances on Robot Item Picking.* *Applications in Warehousing & E-Commerce Fulfillment* Causo A., J. Durham, K. Hauser and A. Rodriguez

Refereed Journal Papers

[J19]	2021 Science	*The unstable queen: Uncertainty, mechanics, and tactile feedback* (Science Robotics) Rodriguez A.
[J18]	2021 IJRR	*Cable Manipulation with a Tactile-Reactive Gripper* She Y., S. Wang, S. Dong, N. Sunil, A. Rodriguez and E. Adelson
[J17]	2020 PNAS	*On the Use of Modeling and Simulation in Robotics: Opportunities, Challenges, and Suggestions for Moving Forward*

Choi, H., C. Crump, C. Duriez, A. Elmquist, G. Hager, D. Han, F. Hearl, J. Hodgins, A. Jain, F. Leve, C. Li, F. Meier, D. Negrut, L. Righetti, A. Rodriguez, J. Tan and J. Trinkle

[J16] 2020 TRO *TossingBot: Learning to Throw Arbitrary Objects with Residual Physics*
Zeng, A., S. Song, J. Lee, A. Rodriguez and T. Funkhouser

[J15] 2020 IJRR *Reactive Planar Manipulation with Hybrid Model Predictive Control*
Hogan, F. and A. Rodriguez

[J14] 2019 A. Rob. *What are the Important Technologies for Bin Picking? Technology Analysis of Robots in Competitions based on a Set of Performance Metrics* (Advanced Robotics)
Fujita M., Y. Domae, A. Noda, G. Garcia Ricardez, T. Nagatani, A. Zeng, S. Song, A. Rodriguez, A. Causo, I.M. Chen, and T. Ogasawara

[J13] 2019 IJRR *Planar In-Hand Manipulation via Motion Cones*
Chavan-Dafle, N., R. Holladay and A. Rodriguez

[J12] 2019 IJRR *Robotic Pick-and-Place of Novel Objects in Clutter with Multi-Affordance Grasping and Cross-Domain Image Matching*
Zeng, A., S. Song, K.-T. Yu, E. Donlon, F. Hogan, M. Bauza, D. Ma, O. Taylor, M. Liu, E. Romo, N. Fazeli, F. Alet, N. Chavan-Dafle, R. Holladay, I. Morona, P. Nair, D. Green, I. Taylor, W. Liu, T. Funkhouser and A. Rodriguez

[J11] 2019 Science *See, feel, act: Hierarchical learning for complex manipulation skills with multisensory fusion* (Science Robotics)
Fazeli, N., M. Oller, J. Wu, , Z. Wu, J. Tenenbaum and A. Rodriguez.

[J10] 2018 TASE *Open Discussion of Robot Grasping Benchmarks, Protocols, and Metrics (Editorial)*
Mahler, J., R. Platt, A. Rodriguez, M. Ciocarlie, A. Dollar, R. Detry, M. A. Roa, H. Yanco, A. Norton, J. Falco, K. van Wyk, E. Messina, J. Leitner, D. Morrison, M. Mason, O. Brock, L. Odhner, A. Kurenkov, M. Matl, and K. Goldberg

[J9] 2018 AURO *Optimal Shape and Motion Planning for Dynamic Planar Manipulation*
Taylor, O. and A. Rodriguez

[J8] 2018 TASE *Analysis and Observations from the First Amazon Picking Challenge*
Correll, N., K. Bekris, D. Berenson, O. Brock, A. Causo, K. Hauser, K. Okada, A. Rodriguez, J. Romano and P. Wurman

[J7] 2018 RA-L *Friction Variability in Planar Pushing Data: Anisotropic Friction and Data-collection*
Ma, D. and A. Rodriguez

[J6] 2017 IJRR *Parameter and Contact Force Estimation of Planar Rigid-Bodies Undergoing Frictional Contact*
Fazeli, N., R. Kolbert, R. Tedrake and A. Rodriguez

[J5] 2014 IJRR *A Data-Driven Statistical Framework for Post-Grasp Manipulation*
Paolini, R., A. Rodriguez, S. Srinivasa and M. Mason

[J4] 2012 IJRR *Autonomous Manipulation with a General-Purpose Simple Hand*
Mason, M., A. Rodriguez, S. Srinivasa and A. Vazquez

[J3] 2012 IJRR *Grasp Invariance*
Rodriguez, A. and M. Mason

[J2] 2012 TRO *Path-Connectivity of the Free Space*
Rodriguez, A. and M. Mason

[J1] 2012 IJRR *From Caging to Grasping*
Rodriguez, A., M. Mason and S. Ferry

Refereed Conference Papers

[C67] 2021 IROS *iNeRF: Inverting Neural Radiance Fields for Pose Estimation*
Yen-Chen L., P. Florence, J. Barron, A. Rodriguez, P. Isola, T. Lin

[C66] 2021 ICRA *Tactile-RL for Insertion: Generalization to Objects of Unknown Geometry*
Dong S., D. Jha, D. Romeres, S. Kim, D. Nikovski and A. Rodriguez

[C65] 2021 ICRA *Planning for Multi-stage Forceful Manipulation*
Holladay R., T. Lozano-Perez and A. Rodriguez

[C64] 2021 ICRA   *Extrinsic Contact Sensing with Relative-Motion Tracking from Distributed Tactile Measurements*
Ma D., S. Dong, A. Rodriguez
ICRA 2021 Best Conference Paper Award

[C63] 2021 ICRA   *Tactile SLAM: Real-time Inference of Shape and Pose from Planar Pushing*
Suresh A., M. Bauza, K-T. Yu, J. Mangelson, A. Rodriguez and M. Kaess
ICRA 2021 Finalist Best Paper Award in Service Robotics

[C62] 2021 ICRA   *Robotic Grasping of Fully-Occluded Objects using RF Perception*
Boroushaki T., J. Leng, I. Clester, A. Rodriguez and F. Adib

[C61] 2020 CoRL   *Tactile Object Pose Estimation from First Touch with Geometric Contact Rendering*
Bauza M., E. Valls, B. Lim, T. Sechopoulos and A. Rodriguez

[C60] 2020 CoRL   *A Long Horizon Planning Framework for Manipulating Rigid Pointcloud Objects*
Simeonov A., Y. Du, B. Kim, F. Hogan, J, Tennenbaum, P. Agrawal and A. Rodriguez

[C59] 2020 IROS   *PnuGrip: An Active Two-Phase Gripper for Dexterous Manipulation*
Taylor I., N. Chavan-Dafle, G. Li, N. Doshi and A. Rodriguez

[C58] 2020 RSS   *A Global Quasi-Dynamic Model for Contact-Trajectory Optimization*
Aceituno-Cabezas B. and A. Rodriguez

[C57] 2020 RSS   *Cable Manipulation with a Tactile-Reactive Gripper*
She Y., S. Wang, S. Dong, N. Sunil, A. Rodriguez and E. Adelson
RSS 2020 Best Paper Award Finalist

[C56] 2020 ICRA   *Accurate Vision-based Manipulation through Contact Reasoning*
Kloss A., M. Bauza, J. Wu, J. Tenenbaum, A. Rodriguez and J. Bohg

[C55] 2020 ICRA   *Long-Horizon Prediction and Uncertainty Propagation with Residual Point Contact Learners*
Fazeli, N., A. Ajay, and A. Rodriguez

[C54] 2020 ICRA   *Hybrid Differential Dynamic Programming for Planar Manipulation Primitives*
Doshi, N., F. Hogan and A. Rodriguez

[C53] 2020 ICRA   *Tactile Dexterity: Manipulation Primitives with Tactile Feedback*
Hogan, F., J. Ballester, S. Dong and A. Rodriguez
ICRA 2020 Best Manipulation Paper Award Finalist

[C52] 2019 ISRR   *Certified Grasping*
Aceituno-Cabezas, B., J. Ballester, and A. Rodriguez

[C51] 2019 IROS   *Force-and-Motion Constrained Planning for Tool Use*
Holladay, R., T. Lozano-Perez and A. Rodriguez

[C50] 2019 IROS   *Tactile-based Insertion for Dense Box-Packing*
Dong, S. and A. Rodriguez

[C49] 2019 IROS   *Omnipush: accurate, diverse, real-world dataset of pushing dynamics with RGB-D*
Bauza, M., F. Alet, Y-C. Lin, T. Lozano-Perez, L. Kaelbling and A. Rodriguez

[C48] 2019 IROS   *A Convex-Combinatorial Model for Planar Caging*
Aceituno-Cabezas, B., H. Dai and A. Rodriguez

[C47] 2019 ICML   *Graph Element Networks: adaptive, structured computation and memory*
Alet, F., A. Jaks, M. Bauza, A. Rodriguez, T. Lozano-Perez and L. Kaelbling

[C46] 2019 RSS   *TossingBot: Learning to Throw Arbitrary Objects with Residual Physics*
Zeng, A., S. Song, J. Lee, A. Rodriguez and T. Funkhouser
RSS 2019 Best System Paper Award

[C45] 2019 ICRA   *Tactile Mapping and Localization from High-Resolution Tactile Imprints*
Bauza M., O. Canal and A. Rodriguez

[C44] 2019 ICRA   *Dense Tactile Force Distribution Estimation using GelSlim and inverse FEM*
Ma, D., E. Donlon, S. Dong and A. Rodriguez

[C43] 2019 ICRA   *Maintaining Grasps within Slipping Bound by Monitoring Incipient Slip*
Dong, S., D. Ma, E. Donlon and A. Rodriguez

[C42] 2019 ICRA   *Combining Physical Simulators and Object-Based Networks for Control*
Ajay, A., M. Bauza, J. Wu, N. Fazeli, J. Tenenbaum, A. Rodriguez and L. Kaelbling

[C41] 2018 WAFR   *GP-SUM. Gaussian Process Filtering of non-Gaussian Beliefs*

Bauza, M. and A. Rodriguez

[C40] 2018 CoRL *Data-Efficient Approach to Precise and Controlled Pushing*
Bauze M., F. Hogan and A. Rodriguez

[C39] 2018 IROS *Augmenting Physical Simulators with Stochastic Neural Networks: Case Study of Planar Pushing and Bouncing*
Ajay, A., J. Wu, N. Fazeli, M. Bauza, L. Kaelbling, J. Tenenbaum, and A. Rodriguez
IROS 2018 Best Cognitive Paper Award

[C38] 2018 IROS *Tactile Regrasp: Grasp Adjustments via Simulated Tactile Transformations*
Hogan, F., M. Bauza, O. Canal, E. Donlon and A. Rodriguez

[C37] 2018 IROS *Realtime State Estimation with Tactile and Visual Sensing for Inserting a Suction-held Object*
Yu, K.-T. and A. Rodriguez

[C36] 2018 IROS *Learning Synergies between Pushing and Grasping with Self-supervised Deep Reinforcement Learning*
Zeng, A., S. Song, S. Welker, J. Lee, A. Rodriguez, and T. Funkhouser
IROS 2018 Finalist Best Cognitive Paper Award

[C35] 2018 IROS *GelSlim: A High-Resolution, Compact, Robust, and Calibrated Tactile-sensing Finger*
Donlon, E., S. Dong, M. Liu, J. Li, E. Adelson and A. Rodriguez
Finalist Amazon Best Technical Paper Award in Manipulation

[C34] 2018 CASE *Regrasping by Fixtureless Fixturing*
Chavan-Dafle N. and A. Rodriguez

[C33] 2018 CASE *Pneumatic Shape-shifting Fingers to Reorient and Grasp*
Chavan-Dafle N., K. Lee and A. Rodriguez

[C32] 2018 RSS *In-Hand Manipulation via Motion Cones*
Chavan-Dafle, N., R. Holladay and A. Rodriguez
RSS 2018 Best Student Paper Award

[C31] 2018 ICRA *Stable Prehensile Pushing: In-Hand Manipulation with Alternating Sticking Contacts*
Chavan-Dafle, N. and A. Rodriguez

[C30] 2018 ICRA *Realtime State Estimation with Tactile and Visual sensing. Planar Manipulation*
Yu, K.-T. and A. Rodriguez

[C29] 2018 ICRA *Reactive Planar Manipulation with Convex Hybrid MPC*
Hogan, F., E. Romo and A. Rodriguez

[C28] 2018 ICRA *Robotic Pick-and-Place of Novel Objects in Clutter with Multi-Affordance Grasping and Cross-Domain Image Matching*
Zeng, A., S. Song, K.-T. Yu, E. Donlon, F. Hogan, M. Bauza, D. Ma, O. Taylor, M. Liu, E. Romo, N. Fazeli, F. Alet, N. Chavan-Dafle, R. Holladay, I. Morona, P. Nair, D. Green, I. Taylor, W. Liu, T. Funkhouser and A. Rodriguez
Amazon Best System Paper Award in Manipulation

[C27] 2017 ISRR *Fundamental Limitations in Performance and Interpretability of Common Planar Rigid-Body Contact Models*, Fazeli, N., S. Zapolsky, E. Drumwright and A. Rodriguez

[C26] 2017 ISRR *Sampling-based Planning of In-Hand Manipulation with External Pushes*
Chavan-Dafle, N. and A. Rodriguez

[C25] 2017 CoRL *Learning Data-Efficient Rigid-Body Contact Models: Case Study of Planar Impact*
Fazeli, N., S. Zapolsky, E. Drumwright and A. Rodriguez

[C24] 2017 Human. *The Complexities of Grasping in the Wild*
Nakamura, Y., D. Troniak, A. Rodriguez, M. Mason and N. Pollard

[C23] 2017 RSS *Optimal Shape and Motion Planning for Dynamic Planar Manipulation*
Taylor O. and A. Rodriguez

[C22] 2017 ICRA *Empirical Evaluation of Common Impact Models on a Planar Impact Task*
Fazeli N., E. Donlon, E. Drumwright and A. Rodriguez A

[C21] 2017 ICRA *A Probabilistic Data-Driven Model for Planar Pushing*
Bauza, M. and A. Rodriguez

[C20] 2017 ICRA *Multi-view Self-supervised Deep Learning for 6D Pose Estimation in the Amazon Picking Challenge*

Zeng, A., K.T. Yu, S. Song, D. Suo, E. Walker Jr., A. Rodriguez, and J. Xiao

[C19] 2016 WAFR   *Feedback Control of the Pusher-Slider System: A Story Hybrid and Underactuated Contact Dynamics*
Hogan, F. and A. Rodriguez

[C18] 2016 ISER   *Experimental Validation of Contact Dynamic Models for In-hand Manipulation*
Kolbert, R., N. Chavan-Dafl and A. Rodriguez

[C17] 2016 IROS   *More than a Millions Ways to be Pushed. A Comprehensive and High-Fidelity Data Set of Planar Pushing*
Yu, K.T., M. Bauza, N. Fazeli and A. Rodriguez
IROS 2016 Finalist Best Paper Award

[C16] 2015 ISRR   *Identifiability Analysis of Rigid Body Frictional Contact*
N. Fazeli, R. Tedrake and A. Rodriguez

[C15] 2015 IROS   *Shape and Pose Recovery from Planar Pushing*
Yu, K.T., J. Leonard and A. Rodriguez

[C14] 2015 IROS   *A Novel Nonlinear Compliant Link on Simple Grippers*
Zhang, Z., A. Rodriguez and M. Mason

[C13] 2015 IROS   *Prehensile Pushing: In-hand Manipulation with Push-Primitives*
Chavan-Dafle, N. and A. Rodriguez

[C12] 2015 CASE   *A Two-Phase Gripper to Reorient and Grasp*
Chavan-Dafle, N., M. Mason, H. Staab, G. Rossano and A. Rodriguez

[C11] 2014 ICRA   *Extrinsic Dexterity: In-Hand Manipulation with External Forces*
Chavan-Dafle, N., A. Rodriguez, R. Paolini, B. Tang, S. Srinivasa, M. Erdmann, M. Mason, I. Lundberg, H. Staab and T. Fuhlbrigge
ICRA 2014 Finalist Best Video Award

[C10] 2013 ICRA   *A Simple and Compliant Force Sensing Palm for the MLab Simple Hand*
Zeglin, G., A. Rodriguez and M. Mason

[C9] 2013 ICRA   *Effector Form Design for 1DOF Planar Actuation*
Rodriguez, A. and M. Mason
ICRA 2013 Best Student Paper Award

[C8] 2012 ISER   *A Data-Driven Statistical Framework for Post-Grasp Manipulation*
Paolini, R., A. Rodriguez, S. Srinivasa, and M. Mason

[C7] 2011 IROS   *Abort and Retry in Grasping*
Rodriguez, A., M. Mason, S. Srinivasa, M. Bernstein and A. Zirbel

[C6] 2011 RSS   *From Caging to Grasping*
Rodriguez, A., M. Mason and S. Ferry
RSS 211 Best Student Paper Award

[C5] 2010 ISER   *Manipulation Capabilities with Simple Hands*
Rodriguez, A., M. Mason and S. Srinivasa

[C4] 2010 WAFR   *Grasp Invariance*
Rodriguez, A. and M. Mason

[C3] 2010 CASE   *Failure Detection in Assembly: Force Signature Analysis*
Rodriguez, A., D. Bourne, M. Mason, G. Rossano and J. Wang

[C2] 2008 WAFR   *Two Finger Caging: Squeezing and Stretching*
Rodriguez, A. and M. Mason

[C1] 2007 ICINCO *RPQ: Robotic Proximity Queries. Development and Applications*
Hernansanz, A., X. Giralt, A. Rodriguez and J. Amat

INVITED TALKS

"Planning and Learning for Predictability"
2021   Jul   RSS 2021, Workshop on integrating planning and learning (WIPL), (virtual)

"Robotic Manipulation with Tactile Dexterity"
2021   Jun   Science Robotics, Neobay Robotics Forum, (virtual)

"The Role of Manipulation Primitives in Building Dexterous Robotic Systems"
2021   Jun   TU Berlin, Robotics Colloquium, (virtual)
2021   Feb   CMU, Robotics Institute Seminar, (virtual)
2020   Dec   MIT, Mechanical Engineering Colloquium, (virtual)
2020   Dec   Berkeley, DREAM/CPAR Seminar, (virtual)

"Certified Grasping"
2021   Jun   ICRA 2021, Workshop Competitions and Benchmarks for robotic manipulation, (virt.)
2019   Nov   IROS 2019, Workshop Manipulation Through Contacts, Macao

"From Crafting to Dexterous Robots"
2021   Feb   MIT, Keynote at Laureates and Leaders induction ceremony, (virtual)

"Good Practices for Good Writing"
2020   Jul   RSS 2020, Workshop Good Citizens of Robotics Research

"Tactile-Driven Dexterity"
2020   Jul   RSS 2020, Visuo-tactile Sensors for Robust Manipulation: From Perception to Control
2020   May   ICRA 2020, ViTac: Closing the Perception-Action Loop with Vision and Tactile
2020   May   ICRA 2020, Workshop on Learning of Manual Skills in Humans and Robots
2020   Apr   ILP - Autonomy Symposium, MIT, USA
2019   Nov   IROS 2019, Workshop RoboTac, Macao

"Robot Automation. Why is Robotic Grasping not a Solved Problem?"
2019   Nov   Canon, ILP, Executive Briefing, MIT, USA
2019   Aug   ABInBev Tech Training Workshop, New York, USA
2019   Jun   Seminar in Digital Transformation, RCC Harvard, USA

"A Vision for Tactile Dexterity and Reactive Manipulation"
2019   Oct   Humanoids 2019, Workshop Humanoid Grasping and Manipulation, Toronto, Canada
2019   Oct   Amazon Research Awards Symposium, Boston, USA
2019   Sep   SENSE.nano Symposium, MIT, USA
2019   Sep   Mitsubishi Electric Research Laboratories, Cambridge, USA
2019   Jun   Lincoln Labs, USA
2019   Jun   Workshop on Adaptive Control, Learning, and Robotics, Yale, USA
2019   Jun   Mathworks, USA
2019   May   ICRA 2019, Workshop on Integrating Vision and Touch, Montreal, Canada
2019   Apr   Robotics Jam Sessions, University of Pisa, Italy

"Manipulation Skills that I Wish my Robots Had"
2019   Oct   Boston Dynamics, Waltham, USA
2019   Apr   KTH, Rootics Seminar, Stockholm, Sweden
2018   Oct   MIT, Mechanical Engineering Colloquium, USA
2018   Oct   Keynote at IROS 2018, Madrid, Spain
2018   Aug   Keynote at World Robot Conference, Beijing, China
2018   May   MIT, Mechanical Engineering Department Area Seminar, USA
2018   Feb   Berkeley, Peoples and Robots Seminar, USA
2018   Jan   HKUST, Robotics Institute Seminar, Hong Kong
2017   Oct   NERC 2017, Northeastern University, Boston, USA
2017   Sep   IROS 2017, Workshop on Contact Frontiers, Vancouver, Canada

"Why Do We Like Benchmarks?"
2019   Aug   Facebook Workshop on Benchmarks in Robotics, Pittsburgh, USA

"Robot Manipulation Planning: A Hierarchy of Problems to Solve and Decisions to Make"
2019   Jun   RSS 2019, Workshop on Learning vs. Reasoning, Freiburg, Germany

"Robotic Dexterous Picking"
2019   Jan   ILP Symposium, Shenzhen, China
2019   Jan   SUSTech, Shenzhen, China
2018   Nov   ILP Symposium, MITSUI, Boston,USA

"Embrace Frictional Contact in Manipulation"
2018   Dec   Boston Dynamics, Waltham, USA

"Adventures on Tactile Sensing"
2018   Oct   Amazon Grant Symposium, Boston, USA.
2018   May   ICRA 2018, Workshop Active Touch for Perception and Interaction, Australia
2017   Jul   RSS 2017, Workshop Tactile Sensing for Manipulation, Cambridge, USA

"Fundamentals of Robotic Manipulation"
2018   Jul   Summer School on Cognitive Robotics, Cambridge, USA
2017   Jul   Summer School on Soft Robotics, Lake Chiemsee, Germany
2017   Jun   Summer School on Cognitive Robotics, Cambridge, USA

"Affordances for Picking, Pushing, and their Synergies"
2018   Jun   RSS 2018, Workshop on Computational Models of Affordance, PA, USA

"Reactive Robotic Manipulation"
2017   Jul   RSS 2017, Workshop Contact - Turning a problem into a solution, Cambridge, USA
2017   May   ICRA 2017, Workshop Sensor-based Object Manipulation for Assembly, Singapore
2017   May   University of Washington, Robotics Colloquia, Seattle, USA
2017   May   MIT, School of Engineering, Junior faculty luncheon, Cambridge, USA

"Team MIT-Princeton's Approach to the Amazon Robotics Challenge"
2018   Jun   ABB Inc. US Corporate Research Center, Bloomfield, CT, USA
2018   May   ICRA 2018, Workshop Advances in Robot Warehouse Automation.
2018   Jan   MIT, Mechanical Engineering Department Faculty Retreat, USA
2017   May   ICRA Workshop Warehouse Picking Automation, Singapore
2016   Jul   ABB Inc. US Corporate Research Center, Bloomfield, CT, USA

"Dexterous Manipulation with non-Dexterous Manipulators"
2017   Jun   ICRA 2017, Workshop AI in Automation, Singapore
2016   Oct   IROS 2016, Workshop Dexterity acquisition in object manipulation, Daejeon, S. Korea
2016   May   ABB Inc. Corporate Research Center, Vasteras, Sweden
2016   May   ICRA 2016, Workshop Contact and Dynamics in Manipulation, Stockholm, Sweden
2016   Mar   Northwestern University, NxR Lab, Evanston, USA
2015   Oct   TATA Consultancy Services, Noida, India.
2015   Aug   MIT, LIDS, Summer Dynamics and Information Lunches, Boston, USA
2015   Jul   Delta Corporation, Taipei, Taiwan
2015   Jul   EPOCH Symposium - The Future of Robotics and Machine Learning, Taipei, Taiwan
2015   Jul   EPOCH Foundation, Garage+, Taipei, Taiwan
2014   Apr   Locomotion Group, MIT-CSAIL, Boston, USA

"Experiments with Frictional Contact"
2016   Dec   SIMPAR 2016, Workshop Grand Challenges in Robot Simulation, San Francisco, USA

"The Pusher-Slider: A Story of Hybrid and Underactuated Contact Dynamics"

2016	Oct	IROS 2016, Workshop Closed-loop Object Manipulation, Daejeon, S. Korea
2016	Oct	MIT Robotics Seminar, Cambridge, USA
2016	Oct	Mathworks, Natick, USA

"Robots in a low labor cost economy"

2015	Oct	TATA Consultacy Services, Noida, India
2015	Oct	MIT Alumni Club, Pune, India
2015	Oct	NASSCOM Engineering Summit, Keynote, Pune, India

"Prehensile Pushing: In-hand Manipulation with External Forces"

| 2015 | May | ICRA 2015, Workshop Robotic Hands, Grasping, and Manipulation, Seattle, USA |

"Primer on Manipulation"

| 2014 | Apr | MIT, Mechanical Engineering, Course 2.165 Robotics, Boston, USA |

"Shape for Contact"'

| 2013 | Sep | Massachusetts Institute of Technology, CSAIL, Locomotion Group, Boston, USA |
| 2013 | Jul | Carnegie Mellon University, CFR Seminar, Robotics Institute, CMU, Pittsburgh, USA |

"Contacting the World with Mechanical and Data-Driven Intelligence"'

2014	Apr	WPI, Computer Science, Worcester, USA
2014	Mar	MIT, Mechanical Engineering, Graduate program Open House, Boston, USA
2013	Apr	Georgia Tech, School of Interactive Computing, Atlanta, USA
2013	Mar	MIT, Mechanical Engineering, Boston, USA
2013	Mar	UMASS, Computer Science, Amherst, USA
2013	Mar	Stanford, Computer Science, Stanford, USA
2013	Mar	University of Maryland, Mechanical Engineering, College Park, USA
2013	Feb	USC, Department of Computer Science, Los Angeles, USA

"Data-Driven Manipulation with a Simple Hand"'

| 2012 | Nov | Georgia Tech, RIM Center, Atlanta, USA |

"Grasp Invariance"'

| 2011 | Feb | LAAS-CNRS, Toulouse, France |
| 2010 | Nov | CMU, CFR Seminar, Pittsburgh, USA |

"From Caging to Grasping"

2011	Jun	RSS 2011, Full oral presentation, Los Angeles, USA
2011	May	ICRA 2011 Workshop "Uncertainty in Automation", Shanghai, China
2008	May	CMU, Human Sensing Laboratory, Pittsburgh, USA
2006	Dec	UPC, ESAII, Barcelona, Spain