Hod Lipson, Ph. D.
James and Sally Scapa Prof. of Innovation
Professor and Chair, Department of Mechanical Engineering, Columbia University, NYC
Columbia Data Science Institute, Columbia Business School.

Curriculum Vitae

(Updated May 2026)

Lipson's research focuses on Robotics, Machine Learning, and Digital Manufacturing. He and his students love designing and building robots that do what you'd least expect robots to do: Self replicate, self-reflect, ask questions, and even be creative. Hod's research asks questions such as: Can robots ultimately design and make other robots? Can machines be curious and creative? Will robots ever be truly self-aware? Answers to these questions can help illuminate life's big mysteries.

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Scholar	https://scholar.google.com/citations?user=F_Go4V4AAAAJ

Key academic metrics

Citations	58,754
H-Factor	94
Publications:	391
Invited Talks	505
PhD Students	33
Years since PhD	27
Google Rank in Robotics	#55

Academic Positions

July 2024-present	Chair, Mechanical Engineering Department, Columbia University, NY
July 2025-present	Affiliated faculty, Columbia University Business School, NY
July 2015-present	Full Professor (endowed), Mechanical Engineering Department and Data Science Institute, Columbia University, NY Co-Director, Columbia Makerspace
Apr 2015-June 2015	Full Professor, Mechanical & Aerospace Engineering and Computing & Information Science, Cornell University, Ithaca NY
Feb 2008-Mar 2015	Associate Professor, Mechanical & Aerospace Engineering and Computing & Information Science,, Cornell University, Ithaca NY

Jan 2010- Dec 12	Associate Director, Mechanical & Aerospace Engineering
Jul 2001- Jan 08	Assistant Professor, Mechanical & Aerospace Engineering, and Computing & Information Science, Cornell University, Ithaca NY
Nov 1998-Jul 2000	Lecturer, Mechanical Engineering Dept., Massachusetts Inst. of Technology, Cambridge MA. Advisor: Prof. Nam P. Suh
Nov 1998-Jul 2001	Postdoctoral researcher, Brandeis Univ., Computer Science Dept., Brandeis University, Waltham MA. Advisor: Prof. Jordan Pollack.

Education

Nov 94-Oct 98	Technion Israel Institute of Technology – Ph.D. Mechanical Engineering. Thesis Title: "Reconstruction of a 3D object from a single freehand sketch as means for CAD interface for conceptual design and analysis" (Advisor: Prof. M. Shpitalni). Awarded 1999
Sep 85-Jul 89	Technion Israel Institute of Technology – B.Sc. Mechanical Engineering, Cum Laude. Awarded 1989

Startup Companies Co-Founded

2024	Face Machines	Co-founder, Human Interaction Robotics (Launching).
2014	3DBio Inc.	Co-founder, Bioprinting (Acquired).
2011	Nutonian Inc.	Co-founder, Scientific Data Mining (Acquired).
2001	NetTrust Inc.	Co-founder, Certified Email Services (Inactive).
1994	Trilogical Inc.	Co-founder, GPS tracking (Acquired).

Editorial Positions

2020-present Editorial Board, ***Science Robotics*** *(Impact factor 23.5)*

2018-present Editorial Board, ***Soft Robotics*** *(Impact factor 8.07)*

2013-2015 Founding Editor-in-Chief, ***3D Printing and Additive Manufacturing*** *(3DP)*, Mary Ann Liebert Publishing (*Impact factor 3.5*)

Advisory Boards

2023- Glow Financial Services (UK)
2025- Infosys (India/US)
2025- John Deere (US)

Professional Positions

1989-1994	Israel Defense Force	Lt. Cmdr. (Navy) – Full time active duty
1996-1997	ASI Inc.	Software developer, created optical calibration system for interference imaging, Haifa Israel
1987-1993	Zorba Technologies	Software developer, Sheet Metal CAD/CAM Expert System, Winterweijk, Netherland

Teaching

Fall 2025	Columbia	**Robotics Studio** (MECE 4611, enrollment 89)
Spring 2025	Columbia	**Robotics Studio** (MECE 4611, enrollment 92)
Fall 2024	Columbia	**Robotics Studio** (MECE 4611, enrollment 89)
Spring 2024	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 81)
Spring 2024	Columbia	**Robotics Studio** (MECE 4611, enrollment 82)
Fall 2023	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 61)
Fall 2023	Columbia	**Robotics Studio** (MECE 4611, enrollment 80)
Spring 2023	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 107)
Spring 2023	Columbia	**Robotics Studio** (MECE 4611, enrollment 75)
Fall 2022	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 61)
Fall 2022	Columbia	**Robotics Studio** (MECE 4611, enrollment 84)
Spring 2022	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 122)
Spring 2022	Columbia	**Robotics Studio** (MECE 4611, enrollment 78)
Fall 2021	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 110)
Fall 2021	Columbia	**Robotics Studio** (MECE 4611, enrollment 75)
Spring 2021	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 110)
Spring 2021	Columbia	**Robotics Studio** (MECE 4611, enrollment 40)
Fall 2020	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 60)
Fall 2020	Columbia	**Robotics Studio** (MECE 4611, enrollment 40)
Spring 2020	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 60)
Spring 2020	Columbia	**Robotics Studio** (MECE 4611, enrollment 35)
Fall 2019	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 60)
Spring 2019	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 55)
Spring 2019	Columbia	**Robotics Studio** (MECE 4611, enrollment 26)
Fall 2018	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 24)
Fall 2018	Columbia	**Special Topics - Robotics** (MECE 8990 enrollment 12)
Spring 2018	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 55)
Fall 2017	Columbia	**Evolutionary Computation** (MECS 4510, enrollment 24)
Spring 2017	Columbia	**Digital Manufacturing** (MECE 4606, enrollment 51)
Spring 2017	Columbia	**Kinematics of Machines** (MECE 3401, enrollment 9)
Fall 2016	Columbia	**Machine Design** (MECE 3409, enrollment 70)
Spring 2016	Columbia	**Digital Manufacturing** (MECE 4606 enrollment 36**)**
Fall 2015	Columbia	Teaching leave (due to move from Cornell to Columbia)
Spring 2015	Cornell	Parental teaching leave (newborn)
Fall 2014	Cornell	**Evolutionary Computation (CS5724)**, Graduate course covering evolutionary computation and applications, enrolment ~20
Summer 2014	CAU	**3D Printing** (approx. 50 participants)
Spring 2013,14	Cornell	**Mechanical Engineering Synthesis (MAE2250)** on product design process, Required Introductory Sophomore course enrolment ~180

Fall 2012,13	Cornell	**Evolutionary Computation (CS5724)**, Graduate course covering evolutionary computation and applications, enrolment ~20
Fall 2009-11	Cornell	**Foundations of Artificial Intelligence (CS4700)**, Introduction to artificial Intelligence, enrollment ~100
Fall 2009-11	Cornell	**AI Practicum: (CS4701)**, project course in AI applications in physical robotics, enrollment 25
Fall 2007	Cornell	**AI Practicum: Robotics and embodied AI (CS473)**, project course in AI applications in physical robotics, enrollment 25
Fall 2002,4,6,8	Cornell	**Evolutionary Computation and Design Automation (CS750/ MAE650)**, Graduate course covering evolutionary computation and applications, enrolment ~25
Spring 2001-8	Cornell	**Mechanical Engineering Synthesis (MAE225)** on product design process, Required Introductory Sophomore course enrolment ~120-140
Fall 2002,3,5	Cornell	**Data structures and algorithms for Computational Science (CIS409/MAE409)**, Advanced undergraduate / Beginning graduate course in, on algorithm design for non-CS majors, enrollment ~15
Fall 2001	Cornell	**Geometric Modeling and Computer Aided Design (MAE580)**, covering mathematical models of geometry and topology
Spring 2000	Brandeis	Topics in Computer Systems / Computer Aided Design and Geometric Modeling
Fall 2000	MIT	Axiomatic Design (Co-Lecturer)
1997-1998	Technion	Computational Geometry (Teaching Assistant)
1996-1997	Technion	Computer Aided Design Laboratory (Project Tutor)
1995-1997	Technion	Fluid Mechanics (Teaching Assistant)

Graduate and Postdoc Students

Current PhD Students

1. **Lorenzo De Sanctis** 2026-present, “Robot Skins”, (Mechanical Engineering)
2. **Jinchen Ruan** 2026-present, “Generative Mechanics”, (Mechanical Engineering)
3. **Richard Milvenan** 2022-present, End-to-end dynamics modeling, (Mechanical Engineering)
4. **Jiong Lin** 2023-present, “Generative Mechanics”, (Mechanical Engineering)
5. **Max Segan** 2021-present, “Robot Learning”, (Computer Science)
6. **Judah Goldfeder** 2022-present, “World Models”, (Computer Science)

Graduated PhD Students (Committee chair)

7. **Yuhang Hu** 2021-present, “Facially expressive Robot”, (Mechanical Engineering)
8. **Zechen Xiong** 2018-2024, “Actuated Buckling”, (Earth and Environmental)
9. **Hayley McClintok** 2020-2024, “Carbon Fiber Lattices”, (Mechanical Engineering)

10. **Philippe Wyder** 2018-2024, “Robot Metabolism”, (Mechanical Engineering)
11. **John Whitehead**, 2018--2024, “Inverted Laser Sintering”, (Mechanical Engineering).
12. **Robert Kwiatkowski** 2018-2022, “Self-Modeling Systems”, (Computer Science)
13. **Boyuan Chen-** 2018-2022, “Robot Theory of Mind”, (Computer Science)
14. **Boxi Xia 2017-**2022, “Soft Robotics”, (Mechanical Engineering)
15. **Jonathan Blutinger-** 2017-2022, “Laser Cooking”, (Mechanical Engineering)
16. **Joni Mici,** 2015-2022, “Layered Assembly”, (Mechanical Engineering).
17. **Yazmin Feliz** – 2015-2020, “3D Ultrasound”, (Mechanical Engineering)
18. **Oscar Chang -** 2016-2020, “Autogenerative networks”, (Computer Science).
19. **Siyuan Chen** - 2015-2019, “Data Smashing”, (Mechanical Engineering).
20. **Richa Batra -** 2014-2019, “Particle Robotics”, (Mechanical Engineering).
21. **Nick Cheney**, 2012-2017, “Automated Design of Embodied Machines”, (Comp. Biology).
22. **Igor Labutov**, 2010-2016, “Machine Teaching”, (Electrical Engineering).
23. **Jason Yosinski**, 2011-2016, “Deep learning”, (Computer Science).
24. **Jeff Lipton,** 2010-2015, 3D printing, (Mechanical Engineering).
25. **Robert MacCurdy**, 2009-2015, Machine Self Reflection (Mechanical Engineering).
26. **Jonas Neubert**, 2008-2014, Programmable Matter (Mechanical Engineering).
27. **Ted Cornforth**, 2009-2014, “Reverse engineering dynamical systems”, (Comp. Biology)
28. **Daniel Ly**, 2009-2013, Automated Telescience (Mechanical Engineering).
29. **John Amend**, 2008-2013, Jamming robotics: Programmable Phase Transition Materials (Mechanical Engineering).
30. **Jonathan Hiller**, 2006-2011, Digital Manufacturing (Mechanical Engineering).
31. **Michael Schmidt**, 2006-2010, Co-evolutionary System Identification (Computational Biology).
32. **Michael Tolley**, 2005-2010, Micro Self-Assembling Stochastic Robotics (Field: ME). Currently Faculty at University of California San Diego (UCSD).
33. **Daniel L. Cohen**, 2005-2010, 3D Bioprinting (Mechanical Engineering).
34. **Evan Malone**, 2002-2008; Multimaterial Solid Freeform Fabrication of Active Systems (Mechanical Engineering).
35. **Viktor Zykov**, 2003-2007, Damage Diagnosis and Repair in Robotic Systems (Mechanical Engineering).

<u>Graduated MSc Students (Committee chair)</u>

1. **Cheryl Perich**, 2010-2012, “Parallel assembly using Electro Osmosis”, (Field: Mechanical Engineering).

2. **Charlie Richter**, 2010-2011, "Flapping flight – modeling, design, and control", (Field: Aerospace).
3. **Nicholas Estevez**, 2004-2006, Functional Representations for Design.
4. **David Hejelle**, 2007-2009, Machine Metabolism (Field: Mechanical Engineering).
5. **Aaron Leftensy**, 2008-2010, Learning Dynamics (Field: Computer Science).

Visiting Master students advised (Columbia)

1. **Drim Stokhuijzen,** 2015-2016, Food Printing (U Utrecht, Netherlands)
2. **Anastasia Markova,** 2016-2017, Deep Learning for crop identification
3. **Yorán Meijers,** 2017, Food Printing

Postdocs advised

1. **Jonathan Blutinger,** 2022-2023, Food Printing and Laser cooking
    a. **Yazmin Feliz,** 2020-2021, 3D Ultrasound
2. **Li Sun,** 2018-2019, Earthquake Modeling
3. **Aslan Miriyev**, 2015-2018, Soft Actuators
4. **Jun Ogawa** (2015-2016) Evolutionary Robotics
5. **Petar Curkovic**, 2014-2015, Design Automation
6. **Shuguang Li**, 2014-2015, Morphing Robotics
7. **Navneet Bhalla**, 2014-2015, Self-Assembly
8. **Ishanu Chattopadhyay**, 2011-2014, Machine Learning.
9. **Daniel Ly** 2013-2014, Automated Modeling
10. **Jonathan Platkiewicz**, 2013-2014, Haptic sensing.
11. **Sebastian Risi**, 2012-2013, Neuroevolution.
12. **Ben Finio**, 2012-2013, Manufacturing Education.
13. **Jeff Clune**, 2010-2012, Evolutionary design and modularity,
14. **David Kou,** 2010, CAD/CAM.
15. **Juan Zagal**, 2008-2010, Machine Self-reflection.
16. **Eric Schweikardt**, 2008-2009, Modular Robotics..
17. **Kyung-Joong Kim**, 2006-2009, Cognitive evolutionary robotics.
18. **Nicolas Lassabe**, 2008, Modular robotics
19. **Viktor Zykov**, 2008, Damage Diagnosis and Repair in Robotic Systems
20. **John Reiffel**, 2006-2007, Tensegrity robotics.
21. **Anupam Saxena**, 2005-2007, Inference of biological networks.

22. **Sanjeev Kumar**, 2004-2006, Algorithms for Muskuloskeletal inference.
23. **Mark Masry**, 2004-2005, Algorithms for 3D Sketch understanding.
24. **Chandana Paul**, 2004-2005, Tensegrity Robotics
25. **Josh Bongard**, 2003-2006, Co-evolutionary algorithms for system design and analysis.

Honors and Awards Received

- Evostar 2024 Julian F. Miller Award "For important contributions to the algorithmic exploration and embodiment of evolution, development and learning"
- ICRA 2024 "Best Demo Award" at the Workshop on Unconventional Robots (Tokyo May 2024).
- ACM GECCO 2023 Impact award "For most impactful paper in the past decade in the field of evolutionary computation"
- Popular Science 2022 Grand Award for Best Health Innovation of the Year (to 3DBio)
- Laureate of the 2022 Aurel Stodola Medal (ETH Zurich)
- Columbia Engineering Alumni Association (CEAA) Distinguished Faculty Teaching Award, 2021
- Outstanding Publication of the Decade 2004-2014, International Society for Artificial Life 2019
- Second place, Robotic Art competition, 2018 (RobotArt.org)
- Student Best Paper award, Robosoft, 2018
- First place, Robotic Art competition, 2017 (RobotArt.org)
- Top 25 Book in China 2013 (out of 400,000 new books in Chinese)
- Elected Faculty to Tau Beta Pi Honor Society, 2013
- US National Academy of Engineering Annual Gilbreth Lecturer, 2012.
- Forbes "Top 7 Data scientists in the world", 2011.
- MSNBC #1 must-see science videos of 2011.
- Best paper award in Physical Biology "Highlights of 2011".
- Popular Science's one of 25 most Awesome labs in the US, 2011.
- Discover Magazine's 25 most important discoveries of 2009.
- ASME SMASIS'09 Honored Finalist Award, 2009.
- Cornell Hellenic Societies Faculty Award, 2008.
- Best paper of the year award. Rapid Prototyping Journal, 2008.
- Provost Distinguished Scholarship Award, 2008.
- Merrill Educator Award, 2008.

- ASME 2007 International Mechanical Engineering Congress and Exposition (IMECE) Best Presentation Award.
- Esquire Magazine Best & Brightest, 2007.
- Best paper Award, Genetic and Evolutionary Computation Conference (GECCO), 2007.
- Popular Mechanics Breakthrough Award, 2007.
- DARPA MTO Young Faculty Award, 2007.
- Outstanding Paper, Solid Freeform Fabrication (SFF'06).
- NSF Young Investigator CAREER award, 2006.
- ENTRY 2006 "Most important innovations in robotic technology".
- Best-in-Tech 2005, MIT Technology Review (German Edition).
- Outstanding Paper, Solid Freeform Fabrication (SFF'05).
- Gold Medal for Human Competitive Automated Invention, GECCO 2005.
- Best Paper Award, International Conference on Advanced Robotics (ICAR'05).
- National Academies "Frontiers of Engineering" speaker.
- Silver Medal for Human Competitive Automated Invention, GECCO 2004.
- TIME Magazine's "Most important events of 2000".
- Biophysical Society "New and Notable", 2001.
- Shaping The Future, EXPO'2000.
- Fischbach Postdoctoral Scholarship, 1998-1999.
- CIRP International F.W. Taylor Medal, 1997.
- Charles Clore Doctoral Fellowship, 1996.
- Miriam and Aaron Gutwirth Memorial Award, 1996.
- 1st Prize for Academic Innovation, *ITIM 9th Israeli Conference on CAD/CAM*, Tel Aviv, 1987.

Refereed Journal Publications (published or in press)

1. Hu, Yuhang, Jiong Lin, Judah Allen Goldfeder, Philippe M. Wyder, Yifeng Cao, Steven Tian, Yunzhe Wang et al. "Learning realistic lip motions for humanoid face robots." ***Science Robotics*** 11, no. 110 (2026): eadx3017.
2. Xiong, Z., Chen, L., Wilkinson, S.L., Shougat, Md Raf E. Ul. Lipson, Hod (2026) Designing novel carangiform fish robots with undulating hair clip mechanisms. ***npj Robotics*** 4, 7 (2026). https://doi.org/10.1038/s44182-025-00053-0
3. Blutinger, Jonathan David, Evan Lloyd Omo, Pol Bernat, and Hod Lipson. "Multi-wavelength laser texturization with 3D-printed foods." ***Journal of Food Engineering*** (2025): 112798.

4. Wyder, Philippe Martin, Riyaan Bakhda, Meiqi Zhao, Quinn A. Booth, Matthew E. Modi, Andrew Song, Simon Kang et al. "Robot metabolism: Toward machines that can grow by consuming other machines." ***Science Advances*** 11, no. 29 (2025): eadu6897.
5. Hu, Yuhang, Boyuan Chen, and Hod Lipson. "Egocentric visual self-modeling for autonomous robot dynamics prediction and adaptation." ***npj Robotics*** 3, no. 1 (2025): 14.
6. Guo, Gabe, Tristan Luca Saidi, Maxwell W. Terban, Michele Valsecchi, Simon JL Billinge, and Hod Lipson. "Ab initio structure solutions from nanocrystalline powder diffraction data via diffusion models." ***Nature Materials*** (2025): 1-9.
7. Hu, Yuhang, Jiong Lin, and Hod Lipson. "Teaching robots to build simulations of themselves." ***Nature Machine Intelligence*** (2025): 1-11.
8. Ben-Abu, Ezra, Anna Zigelman, Yaron Veksler, Sefi Givli, Evgueni Filipov, Hod Lipson, and Amir D. Gat. "Reprogrammable 3D Shapes from 1D Metamaterial." ***Advanced Materials Technologies*** 10, no. 4 (2025): 2401113.
9. Guo, Gabe, Judah Goldfeder, Ling Lan, Aniv Ray, Albert Hanming Yang, Boyuan Chen, Simon JL Billinge, and Hod Lipson. "Towards end-to-end structure determination from x-ray diffraction data using deep learning." ***npj Computational Materials*** 10, no. 1 (2024): 209.
10. Goldfinger, Shir, Hod Lipson, and Jonathan Blutinger. "Dynamic simulation of 3D-printed foods." ***Future Foods*** 9 (2024): 100375.
11. Hu, Yuhang, Boyuan Chen, Jiong Lin, Yunzhe Wang, Yingke Wang, Cameron Mehlman, and Hod Lipson. "Human-robot facial coexpression." ***Science Robotics*** 9, no. 88 (2024): eadi4724.
12. Kutz, J. Nathan, Steven L. Brunton, Krithika Manohar, Hod Lipson, and Na Li. "AI Institute in Dynamic Systems: Developing machine learning and AI tools for scientific discovery, engineering design, and data-driven control." ***AI Magazine*** 45, no. 1 (2024): 48-53.
13. Guo, Gabe, Aniv Ray, Miles Izydorczak, Judah Goldfeder, Hod Lipson, and Wenyao Xu. "Unveiling intra-person fingerprint similarity via deep contrastive learning." ***Science Advances*** 10, no. 2 (2024): eadi0329.
14. Ben-Abu, Ezra, Anna Zigelman, Yaron Veksler, Sefi Givli, Evgueni Filipov, Hod Lipson, and Amir D. Gat. "Reprogrammable 3D Shapes from 1D Metamaterial." ***Advanced Materials Technologies*** (2024): 2401113.
15. Whitehead, J., & Lipson, H. (2023). Inverted laser sintering of metal powders. **Scientific Reports**, 13(1), 20013.
16. McClintock, H., Xiong, Z., Rergis, B., & Lipson, H. (2023). Design and fabrication of carbon fiber lattices using 3D weaving. **Scientific Reports**, 13(1), 14919.

17. H Lipson, S Sukkarieh, (2023) Robots may transform the way we produce and prepare food, ***Nature Reviews Bioengineering*** 1 (11), 795-798
18. Blutinger, J. D., Cooper, C. C., Karthik, S., Tsai, A., Samarelli, N., Storvick, E., … Lipson H & Lipson, H. (2023). The future of software-controlled cooking. ***Nature Science of Food***, 7.
19. Whitehead J, Lipson H (2022) "Multi-Process Printing Method Combining Powder and Resin Based Additive Manufacturing" ***Additive Manufacturing Letters***, 2022
20. Whitehead J, Lipson H (2022) "Embedding Components During Laser Sintering" ***Additive Manufacturing Letters***, 2022
21. Nelson, B. J., Dupont, P., Floreano, D., Goldberg, K., Gu, H., Jacobstein, N., … Lipson H & Lipson, H. (2022). What we look for at Science Robotics. ***Science Robotics***, 7(71), eade5834.
22. Perich, C., MacCurdy, R., Macner, A., Mici, J., Steen, P., & Lipson, H. (2022). Electro-Osmotic Gripper Characterization for Layered Assembly. ***3D Printing and Additive Manufacturing***, 9(4), 337-347.
23. Chen, B., Kwiatkowski, R., Vondrick, C., & Lipson, H. (2022). Fully body visual self-modeling of robot morphologies. ***Science Robotics***, 7(68), eabn1944.
24. Chen, B., Huang, K., Raghupathi, S., Chandratreya, I., Du, Q., & Lipson, H. (2022). Automated discovery of fundamental variables hidden in experimental data. ***Nature Computational Science***, 2(7), 433-442.
25. Sofia Di Toro Wyetzner, Salvy Cavicchio, Andrew Moshova, Hod Lipson (2022) "Regenerative Topology Optimization of Fine Lattice Structures", **Journal of 3D Printing and Additive Manufacturing**
26. Wyder, Philippe M., and Hod Lipson. "Visual design intuition: predicting dynamic properties of beams from raw cross-section images." **Journal of the Royal Society Interface 18.184** (2021): 20210571.
27. Tai, A., Chun, M., Gan, Y., Selamet, M., & Lipson, H. (2021). PARA: A one-meter reach, two-kg payload, three-DoF open source robotic arm with customizable end effector. **HardwareX**, 10.
28. Faraj, Z., Selamet, M., Morales, C., Torres, P., Hossain, M., Chen, B., & Lipson, H. (2021). Facially expressive humanoid robotic face. ***HardwareX***, 9, e00117.
29. Blutinger, J. D., Tsai, A., Storvick, E., Seymour, G., Liu, E., Samarelli, N., ... & Lipson, H. (2021). Precision cooking for printed foods via multiwavelength lasers. ***NPJ science of food***, 5(1), 1-9.
30. Floreano, D., & Lipson, H. (2021). From individual robots to robot societies. ***Science Robotics***, 6(56), eabk2787.

31. Perich, C., MacCurdy, R., Macner, A., Mici, J., Steen, P., & Lipson, H. (2021). Electro-Osmotic Gripper Characterization for Layered Assembly. ***Journal of 3D Printing and Additive Manufacturing.***
32. Chen, B., Vondrick, C., & Lipson, H. Visual behavior modelling for robotic theory of mind. ***Scientific reports***, 11(1), 424.
33. Whitehead, J., & Lipson, H. (2020). Inverted multi-material laser sintering. ***Additive Manufacturing***, 36, 101440.
34. Hiller, J., Mici, J., & Lipson, H. (2020). Layered assemblers for scalable parallel integration. ***Journal of the Royal Society Interface***, 17(171), 20200543-20200543.
35. Xia, B., Miriyev, A., Trujillo, C., Chen, N., Cartolano, M., Vartak, S., & Lipson, H. (2020). Improving the Actuation Speed and Multi-Cyclic Actuation Characteristics of Silicone/Ethanol Soft Actuators. In ***Actuators*** (Vol. 9, No. 3, p. 62). MDPI AG.
36. West, J. D., Mici, J., Jaquith, J. F., & Lipson, H. (2020). Design and optimization of millimeter-scale electroadhesive grippers. ***Journal of Physics D Applied Physics***, 53(43), 435302.
37. Lehman, J., Clune, J., Misevic, D., Adami, C., Altenberg, L., Beaulieu, J., ... & Yosinski, J. (2020). The Surprising Creativity of Digital Evolution: A Collection of Anecdotes From the Evolutionary Computation and Artificial Life Research Communities. ***Artificial life***, 26(2), 274-306.
38. Wiesner-Hanks, T., Wu, H., Stewart, E., DeChant, C., Kaczmar, N., Lipson, H., ... & Nelson, R. J. (2019). Millimeter-level plant disease detection from aerial photographs via deep learning and crowdsourced data. ***Frontiers in plant science***, 10, 1550.
39. Lipson, H. "Robots on the run (vol 4, eaau5872, 2019)." **Nature** 576.7787 (2019): 397-397.
40. Mici, J., Ko, J. W., West, J., Jaquith, J., & Lipson, H. (2019). Parallel electrostatic grippers for layered assembly. **Additive Manufacturing**, 27, 451-460
41. Wu, Harvey, et al. "Autonomous detection of plant disease symptoms directly from aerial imagery." **The Plant Phenome Journal** 2.1 (2019).
42. Blutinger, Jonathan David, Yorán Meijers, and Hod Lipson. "Selective laser broiling of Atlantic salmon." **Food research international** 120 (2019): 196-208
43. A Miriyev, B Xia, JC Joseph, H Lipson "Additive Manufacturing of Silicone Composites for Soft Actuation**", 3D Printing and Additive Manufacturing** 6 (6), 309-318
44. Kwiatkowski, R., & Lipson, H. (2019). Task-agnostic self-modeling machines. **Science Robotics**., 4, eaau9354.

45. Li, S., Batra, R., Brown, D., Chang, H. D., Ranganathan, N., Hoberman, C. Rus D, Lipson, H. (2019). Particle robotics based on statistical mechanics of loosely coupled components. **Nature**, 567(7748), 361.
46. J Mici, JW Ko, J West, J Jaquith, H Lipson (2019) "Parallel Electrostatic Grippers for Layered Assembly ", **Additive Manufacturing** (in press)
47. Lipson H., (2019) "Robots On The Run", Nature 568, 174-175 (2019)
48. Blutinger, J. D., Meijers, Y., & Lipson, H. (2019). Selective laser broiling of Atlantic salmon. **Food Research International**, 120, 196-208.
49. Cartolano, M., Xia, B., Miriyev, A., & Lipson, H. (2019, March). Conductive Fabric Heaters for Heat-Activated Soft Actuators. In **Actuators** (Vol. 8, No. 1, p. 9). Multidisciplinary Digital Publishing Institute.
50. Blutinger, J. D., Meijers, Y., Chen, P. Y., Zheng, C., Grinspun, E., & Lipson, H. (2019). Characterization of CO2 laser browning of dough. Innovative **Food Science & Emerging Technologies**, 52, 145-157.
51. Chen, P. Y., Blutinger, J. D., Meijers, Y., Zheng, C., Grinspun, E., & Lipson, H. (2019). Visual modeling of laser-induced dough browning. **Journal of food engineering**, 243, 9-21.
52. Fabian Stute, Joni Mici, Lewis Chamberlain, Hod Lipson, (2019) "Digital Wood: 3D Internal Color Texture Mapping" **3D Printing and Additive Manufacturing** Vol 5 No 4 pp 285-291
53. Wiesner-Hanks, T., Stewart, E. L., Kaczmar, N., DeChant, C., Wu, H., Nelson, R. J., ... & Gore, M. A. (2018). Image set for deep learning: field images of maize annotated with disease symptoms. **BMC research notes**, 11(1), 440.
54. Hertafeld, E., Zhang, C., Jin, Z., Jakub, A., Russell, K., Lakehal, Y., ... & Lipson, H. (2018). Multi-material three-dimensional food printing with simultaneous infrared cooking. 3D Printing and Additive Manufacturing, 6(1), 13-19.
55. Cheney, N., Bongard, J., SunSpiral, V., & Lipson, H. Scalable Co-Optimization of Morphology and Control in Embodied Machines. **Royal Society Interface**, In review (second cycle)
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148. Masry, M., Lipson, H. (2005) "A Sketch-Based Interface for Iterative Design and Analysis of 3D Objects", Proceedings of Eurographics workshop on Sketch-Based Interfaces, Dublin, Ireland, Aug 2005, pp. 109-118.

149. Berry, M., Malone, E., Lipson, H. (2005) "Freeform Fabrication of Zinc-Air Batteries with Tailored Geometry and Performance", Proceedings of the 16th Solid Freeform Fabrication Symposium, Austin TX, Aug 2005.

150. Paul, C. Lipson, H. Valero-Cuevas, F.J. (2005)"Redundancy in the Control of Robots with Highly Coupled Mechanical Structures", Int. Conf. on Intelligent Robots and Systems, Edmonton, Canada, August 2005, pp. 802-808.

151. Malone E., Lipson H., (2005) "Freeform Fabrication of Ionomeric Polymer-Metal Composite Actuators", Proceedings of the 16th Solid Freeform Fabrication Symposium SFF'05, Austin TX, Aug 2005. **Outstanding Paper Selection**

152. Paul C., Lipson H., Valero-Cuevas F. J. (2005) "Design of Tensegrity Robots for Fault Tolerant Locomotion" Proceedings of 12th International Conference on Advanced Robotics (ICAR), Seattle, Washington, USA, July 18th-20th. **Best Paper Award**

153. Paul C., Lipson H., Valero-Cuevas F. J. (2005) "Evolutionary Form-Finding of Tensegrity Structures" Proceedings of the 2005 Genetic and Evolutionary Computation Conference, June 2005, Washington D.C., U.S.A, pp. 3-10.

154. Bongard J., Lipson H., (2005) `Managed Challenge' Alleviates Disengagement in Co-evolutionary System Identification, Proceedings of the 2005 Genetic and Evolutionary Computation Conference, June 2005, Washington D.C., USA., pp. 531 – 538.

155. White, P., Zykov, V., Bongard, J., Lipson, H. (2005) "Three Dimensional Stochastic Reconfiguration of Modular Robots", Proceedings of Robotics Science and Systems, MIT, Cambridge MA, June 8-10, 2005.

156. Zykov, V., Bongard, J., Lipson, H. (2005) "Co-evolutionary Variance Can Guide Physical Testing in Evolutionary System Identification", Proceedings of the 2005 NASA/DoD Conference on Evolvable Hardware, June 2005, Washington D.C., USA.

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159. Lipson, H., Bongard, J., Zykov, V. (2005) "Co-Evolutionary Methods in System Design and Analysis", 15th International CIRP Design Seminar, Shanghai, China.

160. Bongard, J. and Lipson, H. (2004) "Integrated Design, Deployment and Inference for Robot Ecologies", Proceedings of Robosphere (2004) November 2004, NASA Ames Research Center, CA USA.

161. Malone, E. and Lipson, H. (2004) "Solid Freeform Fabrication for Autonomous Manufacturing of Complete Robots", Proceedings of Robosphere 2004, November 2004, NASA Ames Research Center, CA USA.

162. Preble, S.F., Lipson, H., Lipson, M. (2004) "Novel two-dimensional photonic crystals designed by evolutionary algorithms", Proceedings of SPIE Volume: 5597, pp. 118-128.

163. Valero-Cuevas, F. J. and Lipson, H. (2004) "A computational environment to simulate complex tendinous topologies". In Proceedings of the 26th Annual International Conference of the IEEE EMBS, San Francisco, CA.

164. Masry, M., Kang, D. J., Susilo, I. and Lipson, H. (2004) "A Natural Freehand Sketching Interface for Progressive Construction of 3D Objects", AAAI Fall Symposium on Making Pen-Based Interaction Intelligent and Natural, pp. 98-105, October 2004.

165. Kang, D. J., Masry, M. and Lipson, H. (2004) "Reconstruction of a 3D Object From a Main Axis System", AAAI Fall Symposium on Making Pen-Based Interaction Intelligent and Natural, pp. 63-69, October 2004.

166. Zykov, V., Bongard, J., Lipson, H. (2004) "Evolving Dynamic Gaits on a Physical Robot", *Proceedings of Genetic and Evolutionary Computation Conference*, Late Breaking Paper, GECCO'04.

167. Malone, E., Lipson, H. (2004) "Freeform Fabrication of Electroactive Polymer Actuators in Electromechanical Devices", Proceedings of the 15th conference on Solid Freeform Fabrication, Austin TX, Aug 2003, pp. 697-708. **SFF Outstanding Paper**

168. Cohen. D.L., Malone. E., Lipson. H., Bonassar. L.J. (2004) "Multi-Tissue Direct Freeform Fabrication of Spatially Heterogeneous Biological Implants", Proceedings of the 15th conference on Solid Freeform Fabrication, Austin TX, Aug 2003, pp.720-731.

169. Bongard, J., Lipson, H. (2004), "Automated Damage Diagnosis and Recovery for Remote Robotics", IEEE International Conference on Robotics and Automation (ICRA04), pp. 3545-3550.

170. White, P. J., Kopansk,i K., Lipson, H. (2004) "Stochastic Self-Reconfigurable Cellular Robotics", IEEE International Conference on Robotics and Automation (ICRA04), pp. 2888-2893.

171. Bongard, J. C. and Lipson, H. (2004) "Automating Genetic Network Inference Using a Very Low Sampling Estimation-Verification Evolutionary Algorithm", Genetic and Evolutionary Computation Conference, (GECCO '04), pp. 333-345.

172. Mytilinaios, E., Marcus, D., Desnoyer, D, Lipson, H. (2004) "Designed and Evolved Blueprints for Physical Self-Replicating Machines", Ninth Int. Conference on Artificial Life (ALIFE IX), pp.15-20.

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183. Lipson, H., Pollack, J. B., Suh, N. P. (2001) “Promoting Modularity In Evolutionary Design”, Proceedings of DETC’01 2001 ASME Design Engineering Technical Conferences, September 9-12, 2001, Pittsburgh, Pennsylvania, USA.

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188. Lipson, H. and Pollack J. B. (2000) “Towards fully automated design and manufacturing”, *Proceedings of International CIRP Design Seminar* (DN2000), Haifa, Israel.

189. Pollack, J. B. and Lipson H. (2000) “The GOLEM Project: Evolving Hardware Bodies and Brains”, The *Second NASA/DoD Workshop on Evolvable Hardware*, July 13-15, 2000, Palo Alto, California, USA.

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191. Pollack, J.B., Lipson, H., Ficici, S., Funes, P., Hornby, G., Watson, R.A. (2000) “Evolutionary Techniques in Physical Robotics”, *Third International Conference on Evolvable Systems: From Biology to Hardware (ICES2000)*.

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196. Lipson, H. and Shpitalni, M. (1997) "Conceptual Design of Sheet Metal Products by Sketching", *Proc. of the Int. Conf. on Sheet Metal SheMet’98*, pp. 171-180, Enschede, Holland, April 7-9, 1998.

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198. Shpitalni, M. and Lipson, H. (1997) "Automatic reasoning for design under geometric constraints," *Annals of the CIRP*, Vol. 46/1, pp. 85-89.

199. Lipson, H., Hod, Y., Siegelmann, H.T (1997) "High-Order Clustering Metrics for Competitive Learning Neural Networks", Proceedings of the Israel-Korea Bi-National Conference on New Themes in Computer Aided Geometric Modeling, Tel-Aviv, Israel, Feb. 18-19, pp. 181-188.

200. Lipson, H. and Shpitalni, M. (1996) "An Interface for 3D Conceptual Design Based on Freehand Sketching," *Proceedings of the Israel-Germany Bi-National Conference on Computer Integrated Extended Manufacturing Enterprise*, pp. 141-150.

201. Lipson, H. and Shpitalni, M. (1996) "An Interface for 3D Conceptual Design Based on Freehand Sketching", *IFIP WG5.2 Workshop on Geometric Modeling in Computer-Aided Design*, pp. 139-148. (Results presented in extenso in Ref. 2 above.)

202. Lipson, H. and Shpitalni, M. (1996) "Decomposition of a 2D polygon into a minimal set of disjoint primitives", *CSG96 Conference on Set-Theoretic Solid Modeling*, Winchester, UK, April 1996, pp. 65-82.

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Other conference papers

204. Studer G. and Lipson H. (2005) "Spontaneous emergence of self-replicating, competing cube species in physical cube automata", GECCO Late Breaking Paper.

205. Schmidt M. and Lipson H. (2005) "Co-evolution of Fitness Maximizers and Fitness Predictors", GECCO Late Breaking Paper.

206. Bongard J.B., Lipson H., (2005) "Reinventing the Wheel: Experiments in Evolutionary Geometry", GECCO Late Breaking Paper.

207. Anand, V., Lipson, H., Valero-Cuevas, F.J. (2005) "Blind Inference of Nonlinear Cable Network Topology from Sparse Data", GECCO Late Breaking Paper.

208. Lipson, H. (2004) “How to Draw a Straight Line Using a GP: Benchmarking Evolutionary Design Against 19th Century Kinematic Synthesis”, GECCO Late Breaking Paper, GECCO 2004. **Silver Medal for Human Competitive Automated Invention**

209. Timm, R. W., Lipson, H. (2004) “Periodicity Emerges from Evolved Energy-Efficient and Long-Range Brachiation”, *Proceedings of Genetic and Evolutionary Computation Conference*, Late Breaking Paper, GECCO’04.

210. Lipson, H. (2004) “Principles of Modularity, Regularity, and Hierarchy for Scalable Systems”, *Genetic and Evolutionary Computation Conference* (GECCO‘04) Workshop on Modularity, Regularity and Hierarchy.

Theses

211. Lipson, H. (1998) *An Interface For 3D Conceptual Design Based On Freehand Sketching*. *Ph.D. Thesis*, Mechanical Engineering Department, Technion – Israel Institute of Technology.

Books

Trade books and monographs

212. Lipson, H. and Kurman M. (2016) "Driverless: Intelligent cars and the road ahead", MIT Press
213. Lipson, H. and Kurman M. (2013) "Fabricated: The new world of 3D printing", Wiley Press.
214. Lipson, H. and Kurman M. (2010) "Factory@Home: The Emerging Economy of Personal Fabrication" Report Commissioned by the Whitehouse Office of Science & Technology Policy.

Edited Conference Proceedings

215. Hiroki Sayama, John Rieffel, Sebastian Risi, René Doursat and Hod Lipson (Eds.) *Artificial Life 14*, Proceedings of the Fourteenth International Conference on the Synthesis and Simulation of Living Systems (2014)
216. Lipson, H. and Thierens, D., et al., (Eds.): Genetic and Evolutionary Computation Conference, GECCO 2007, Proceedings, London, England, UK, July 7-11, 2007. ACM 2007, ISBN 978-1-59593-697-4.
217. Beyer, H.-G., O'Reilly, U.-M., Lipson, H., Blum, C., Dasgupta, D., Foster, J.A., Banzhaf, W., De Jong, E., Pelikan, M., Raidl, G., Deb, K., Zitzle,r E., Arnold, E., Tyrrel,l A., Cantu-Paz, E., Soule, T., Llora, X., Watson, J.-P., Bonabeau, E., Mancoridis, S. (Eds.): Genetic and Evolutionary Computation Conference, GECCO 2005, Proceedings, Washington DC, USA, June 25-29, 2005. ACM 2005, ISBN 1-59593-010-8.
218. Lipson, H, Antonsson, E.K., Koza, J.R. (Eds.) Computational Synthesis: From basic building blocks to high level functionality, Papers from 2003 AAAI Symposium, March 24-26, 2003, Stanford CA, AAAI Press, ISBN 1-57735-179-7.

Book Chapters

219. Lipson, H. (2008) "The Inevitable Magic of Artificial Life," in Pfeifer R., (Ed.) *The Rediscovery of Intelligence,* pp. 114-115.
220. Van Breugal, F., Teoh, Z.E., Lipson H. (2007) "A Passively Stable Hovering Flapping Micro Air Vehicle", in D. Floreano et al. (eds.), **Flying Insects and Robots**, pp. 171-184, Springer.

221. Lipson, H. (2007) “Curious and Creative Machines,” in Pfeifer R., Bongard J.B., Lungarella (Eds.) *50 Years of AI*, Festschrift, LNAI 4850, pp. 316-320.

222. Lipson, H. (2005) "Evolutionary Design and Evolutionary Robotics", *Biomimetics*, CRC Press (Bar Cohen, Ed.), pp. 129-155.

223. Lipson, H. (2002) “Towards Synthetic Evolution of Nanostructures”, in Chakraborty T., (Ed.) *Nano-Physics & Bio-Electronics - A new Odyssey,* pp. 341-352.

224. Pollack, J. B., Lipson, H., Ficici, S. G., Funes, P., Hornby, G., Watson, R.A. (2001). "Evolutionary Techniques in Physical Robots," in *Creative Evolutionary Systems*, Peter J. Bently and David W. Corne (eds). Morgan-Kaufmann, 2001, pp. 511-520.

225. Lipson, H. and Siegelmann, H.T. (2000), “High Order Eigentensors as Symbolic Rules in Competitive Learning”, in S. Wermter, R. Sun (Eds.) *Hybrid Neural Systems*, Springer, LNCS 1778, pp. 286-297.

226. Shpitalni, M., Lipson, H., (1998), "Product Development and CAD/CAM", in F.L.Krause, Ed., *Product Modeling*, Verlag, Berlin.

Issued Patents

1.	7,625,198	12/1/2009	Modular Fabrication Systems and Methods
2.	7,939,003	5/10/2011	Modular Fabrication Systems and Methods
3.	8,636,938	1/28/2014	Modular Fabrication Systems and Methods
4.	8,877,112	11/4/2014	Modular Fabrication Systems and Methods
5.	9,242,031	1/26/2016	Modular Fabrication Systems and Methods
6.	ZL200980137301.6		Apparatus and Methods for Digital Manufacturing
7.	8,996,155	3/31/2015	Apparatus and Methods for Digital Manufacturing
8.	8,884,496	11/11/2014	Fluid Current Energy Capture Apparatus and Method
9.	9,556,947	1/31/2017	Bidirectional Gear, Method, and Applications
10.	ZL 2011 8 0022498.6	9/16/2015	Bidirectional Gear, Method, and Applications
11.	9,079,337	7/14/2015	Systems and Methods for Freeform Fabrication of Foamed Structures
12.	8,882,165	11/11/2014	Gripping and Releasing Apparatus and Methods
13.	9,120,230	9/1/2015	Gripping and Releasing Apparatus and Methods
14.	9,723,866	8/8/2017	A System and Method for Solid Freeform Fabrication of Edible Food
15.	8,992,183	3/31/2015	System and Methods for Moving Objects Individually and in Parallel
16.	9,098,913	8/4/2015	Prediction of Successful Grasps by End of Arm Tooling

17. 9,487,38711/8/2016 System and Methods for Actuation Using Electro-Osmosis
18. 9,579,2192/28/2017 Robotic Apparatus, Method, and Applications

Invited Talks, Keynotes, and Colloquia

1. Keynote, “The Next AI”, Family Office Summit, New York NY, November 28, 2023
2. Keynote, “The Next AI”, One Peak Annual Investor Meeting, Londin UK, November 16, 2023
3. Invited Speaker, “The Next AI”, B35, San Francisco CA, Nov 7, 2023
4. Keynote, “This Future of AI, Russel Investments, November 2, 2023
5. Invited Speaker, “The Six Waves of AI”, B Capital, New York NY, October 17, 2023
6. Invited Speaker, “The Future of AI”, Family Office Forum, New York NY, Oct 11, 2023
7. Keynote Speaker, “The Next AI”, CCNY 2023 Symposium on AI and Robotics, Clean Energy, and Education, New York NY, Oct 7, 2023
8. Keynote Speaker, “The Next AI”, Florida Power & Light, Juno Beach, FL, Oct 5, 2023
9. Invited Speaker, “The Six waves of Artificial Intelligence”, EST SENAT Executive Program, Sao Paulo, Brazil, Oct 3, 2023
10. Invited Speaker, “Democratization of Artificial Intelligence”, Singularity University Executive Program, San Francisco, CA, Oct 2, 2023
11. Keynote Speaker, “The Next AI”, BAID @ The Hub, New York NY, Sep 19, 2023
12. Keynote Speaker, “The Next AI”, Russel Investments ENGAGE 2023, Seattle WA, Sep 15, 2023
13. Invited Speaker, “Introduction to AI”, Lumenis, Tel Aviv, Israel, July 30, 2023
14. Invited Speaker, “The Next AI”, Lifelong Montclair Robotics Presentation, (online), July 10, 2023
15. Invited Speaker, “Democratization of Artificial Intelligence”, Singularity University Executive Program, San Francisco, CA, June 5, 2023
16. Keynote Speaker, “The Next AI”, Innovation Club of Thailand, (online), May 24, 2023
17. Keynote Speaker, “The Next AI”, Rafael AI Tech Conference, (online), May 11, 2023
18. Keynote Speaker, “The Next AI”, Family Office Conference, New York NY, May 4, 2023
19. Invited Speaker, “The future of Mobility”, B37 Executive, Mexico City, Mexico, May 3, 2023
20. Invited Speaker, “Democratization of Artificial Intelligence”, Singularity University Executive Program, San Francisco, CA, May 1, 2023
21. Invited Speaker, “The Next AI”, CEO Annual Summit, Fort Lauderdale, April 1, 2023
22. Colloquium Speaker, “Self-Aware Machines”, ME/CS Department, University of Illinois at Urbana Champaign, Champaign IL, March 30, 2023

23. Invited Speaker, “The Next AI”, Singtel Executive Briefing, Singapore, March 22, 2023
24. Invited Speaker, “Artificial Intelligence and Robotics”, YPO Executive Briefing, New York NY, March 14, 2023
25. Invited Lecture, “Automating Discovery”, ETH Zurich, Zurich Switzerland, Dec 22, 2022
26. Keynote, “Artificial Intelligence and Robotics”, Entrepreneurial Organization (EO) Delhi Chapter, New Delhi, India, Dec 16, 2022
27. Invited Speaker, “Artificial Intelligence and Robotics”, Kentucky Fried Chicken (KFC) executive Briefing, San Francisco CA, Dec 1, 2022
28. Invited Speaker, “Artificial Intelligence and Robotics”, HSM Summit, São Paulo, Brazil, Nov 23, 2022
29. Keynote, “The Next AI”, Harman Automotive, Querétaro, Mexico, Oct 25, 2022
30. Invited Speaker, “Artificial Intelligence and Robotics”, HSM Executive Briefing, São Paulo, Brazil, Oct 24, 2022
31. Keynote, “AI and Mobility”, Novus Glass Summit 2022, Dallas Fort Worth, TX, October 20, 2022
32. Invited Speaker, “The Next AI”, Singularity University Executive Program, San Francisco, CA, October 3, 2022
33. Keynote, “AI and Mobility”, Fix Network Summit 2022, Quebec City, Canada Sep 29, 2022
34. Seminar, “The Next AI”, U.N. Delegation on education, New York NY September 19, 2022
35. Invited Speaker, “The Next AI”, Visa Corporation, Campos do Jordão, Brazil, June 28, 2022
36. Invited Speaker, “Artificial Intelligence and Robotics”, Visa Corporation, São Paulo, Brazil, June 24, 2022
37. Invited Speaker, “The Next AI”, Ventu Cotton, San Francisco, CA, June 17, 2022
38. Keynote, “Consciousness: The dawn of Machine awareness”, European Commission Science Summit 2022, (online), May 11, 2022, June 14, 2022
39. Keynote, “The Six Waves of Artificial Intelligence”, from Creative Collaborations Conference, Ben Gurion University, May 11, 2022, Be’er Sheva, Israel
40. Seminar Speaker, “Automating Discovery – From Cognitive Robotics to Systems Biology”, ABC Robotics, Ben Gurion University, May 9, 2022, Be’er Sheva, Israel
41. Invited Speaker, “AI and Robotics”, Kazakhstan YPO, Menlo Park CA, May 3, 2022
42. Invited Speaker, “Self-Aware Machines”, Machine Learning, AI, Robotics and Space (MARS), Mar 29, 2022 Ojai Valley, CA
43. Keynote, “The Six Waves of Artificial Intelligence”, Money Management Institute Annual Summit, Palm Beach FL, March 24, 2022

44. Invited Speaker, “Robotics and AI”, NextEra executive retreat, March 23, 2022 (online)
45. Keynote, “Automating Discovery – From Cognitive Robotics to Systems Biology”, NSF AI Institute on Dynamical Systems Launch, University of Washington, Mat 16, 2022, Seattle WA
46. Invited Speaker, “AI and Robotics”, Singularity University Executive Program, Menlo Park CA, March 7, 2022
47. Invited Speaker, “Automating Discovery – From Cognitive Robotics to Particle Physics”, Distinguished Lectures Seminar Series, University of Southern California, Feb 22, 2022 (online)
48. Invited Speaker, “The Six Waves of Artificial Intelligence”, Money Management Institute Board of Directors, January 20, 2022 (online)
49. Invited Speaker, “Trends in AI and Robotics””, RFF Future of Space Operations, Online, January 12, 2022
50. Invited Speaker, “The Six Waves of Artificial Intelligence”, SEAS Employee Engagement Speaker, New York NY, Dec 9, 2021
51. Invited Speaker, “The Six Waves of Artificial Intelligence”, Alsea Board Meeting, Dec 9, 2021 (online)
52. Invited Speaker, “AI and Robotics”, Singularity University Executive Program, Menlo Park CA, Nov 7, 2021
53. Invited Talk, “AI and CAD”, Autodesk Advisory Board, Boston MA, Dec 2, 2021
54. Invited Speaker, “AI and Robotics”, Singularity University Executive Program, Menlo Park CA, Nov 7, 2021
55. Invited Speaker, “Robotics and AI”, Sony executive retreat, October 19, 2021 (online)
56. Invited Speaker, “Self-Modeling Systems”, ICCV Simulation Technology for Embodied AI workshop, Oct 16, 2021 (online)
57. Keynote, “The four phases of Additive Manufacturing”, NANO IL, Online, Oct 6, 2021
58. Invited Speaker, “Trends in AI and Robotics”, University of Notre Dame Emerging Tech, Oct 1, 2021 (online)
59. Invited Speaker, Innovation Salon, Columbia Business School, “Trends in AI and Robotics”, Sep 23, New York, NY
60. Invited Speaker, “Future of Mobility”, Ernst & Young Disruptive Tech Series, Online, Sep 14, 2021
61. Invited Speaker, “The Next AI”, Tiger 21 Board meeting, July 7, 2021
62. Invited Speaker, “Future of Mobility”, Ernst & Young Disruptive Tech Series, Online, June 9, 2021

63. Invited Speaker and panelist, “Trends in AI and Robotics””, RFF Future of Space Operations, Online, April 27, 2021
64. Keynote, “Soft Actuators for Soft Robotics”, Robosoft 2021, Online, April 16, 2021
65. Invited Speaker and panelist, “Self-Aware Machines”, International Workshop on Embodied Intelligence, March 24, 2021
66. Keynote, “Trends in AI and robotics”, New York Academy of Dentistry, Online, March 11, 2021
67. Keynote, “3D Printing: The Next 25 Years”, CEO Webcast, Online, March 6, 2021
68. Keynote, “Future of AI and Robotics”, ARPA-E Annual Fission Meeting, Online, Feb 23, 2021
69. Keynote, “Future of AI and Robotics”, Arrow EMEA Leadership, Online, Feb 16, 2021
70. Invited Speaker, “Future of Mobility”, Ernst & Young Disruptive Tech Series, Online, Feb 9, 2021
71. Keynote, “Artificial Intelligence: The Next 25 Years”, Aditya Birla Group BizlabsNXT Digital AI Conclave, Online, Jan 28, 2021
72. Keynote, “Automating Discovery”, Design Computing and Cognition (DCC) 2020, Online, Dec 14, 2020
73. Keynote, “Artificial Intelligence: The Next 25 Years”, CEO Webcast, Online, Nov 30, 2020
74. Invited Speaker, “Future of Mobility”, Ernst & Young Disruptive Tech Series, Online, Oct 26, 2020
75. Keynote, “Big Data in Manufacturing”, Michigan Manufacturing Leadership Series, Online, Oct 8, 2020
76. Keynote, “Deep Learning in Computer Aided Design”, Altair Global ATC, Online, Oct 6, 2020
77. Invited Speaker and panelist, “Future50: Leadership & Strategy in the age of AI”, RFF, Online, Aug 26, 2020
78. Invited Speaker, “Can We Learn To Stop Worrying and Love AI?”, American Society of Composers, Authors and Publishers (ASCAP) Lab Speaker Series, Online, Aug 25, 2020
79. Invited Speaker, “Automating Discovery””, Food and Drug Administration (FDA), Online, August 7, 2020
80. Invited Speaker, “Automating Discovery””, IEEE World Congress on Computational Intelligence (WCCI), Online, July 20, 2020
81. Invited Speaker, “Trends in Robotics and AI”, Citibank Unstoppable Trends, July 29, 2020
82. Invited Speaker, “Trends in Robotics and AI”, Procter & Gamble| Cincinnati, OH, Feb 25, 2020

83. Invited Speaker, Soft Robotics 2020, “Soft Actuators for Soft Robotics”, Haifa Israel, Feb 5, 2020
84. Keynote, A360, “Autonomous Vehicles”, Los Angeles, CA, Jan 20, 2020
85. Invited Speaker, CVC Annual Retreat, “Trends in Robotics and AI”, Palm Beach FL, Jan 9, 2020
86. Keynote, Edge Connex Annual Retreat, “Trends in Artificial Intelligence”, Washington DC, Dec 12, 2019
87. Invited Speaker, Envision 2020, “AI Ethics”, Princeton NJ, Nov 22, 2019
88. Invited Speaker, Citibank Singapore, “Trends in Robotics and AI”, Singapore, Nov 14, 2019
89. Keynote, 3D Printing and Beyond, “The four waves of Additive Manufacturing”, Jerusalem Israel, Nov 7, 2019
90. Invited Speaker, Citibank Singapore, “Trends in Robotics and AI”, Singapore, Nov 3, 2019
91. Keynote, WE Summit, “Self Aware Machines”, Beijing, Nov 2, 2019
92. Keynote, Columbia Dental School, “Artificial Intelligence in Dentistry”, New York NY, Sep 29, 2019
93. Invited Speaker, Citibank, “Trends in Robotics and AI”, Santa Clara CA, Oct 22, 2019
94. Invited Speaker, Citibank Singapore, “Trends in Robotics and AI”, Singapore, Sep 25, 2019
95. Keynote, Teacher’s College, “AI in Education”, New York NY, Sep 20, 2019
96. Keynote, Goldman Sachs investor retreat, “Trends in Artificial Intelligence”, New York NY, Sep 19, 2019
97. Keynote, AkzoNobel Annual Summit, “Autonomous Vehicles”, New Orleans, LA, Sep 18, 2019
98. Invited Speaker, LG, “Trends in 5G”, Santa Clara CA, Sep 17, 2019
99. Invited Speaker, YPO Long Island, “Trends in Artificial Intelligence”, Long Island NY, Sep 13, 2019
100. Keynote, Goldman Sachs investor retreat, “Trends in Artificial Intelligence”, New York NY, Sep 12, 2019
101. Invited Speaker, Moody, “Trends in Artificial Intelligence”, New York NY, Sep 10, 2019
102. Invited Speaker, Citibank Singapore, “Trends in Robotics and AI”, Singapore, Aug 26, 2019
103. Keynote, Epigenetic Robotics, EPIROB 2019, “Cognitive Robotics”, Oslo, Norway, Aug 20, 2019
104. Invited Speaker, Exxon Mobil, “Trends in Robotics and AI”, Luanda, Angola, Aug 16, 2019
105. Keynote, tech HR, “Artificial Intelligence”, Delhi, Aug 1, 2019
106. Invited Speaker, US DDI, “Trends in Robotics and AI”, Washington DC, July 30, 2019

107. Invited Speaker, DDI, “Trends in Robotics and AI”, Washington DC, July 30, 2019
108. Keynote, SAP Summit, “Artificial Intelligence”, Philadelphia PA, July 24, 2019
109. Invited Speaker, Singularity University EIP, “Trends in Robotics and AI”, Mountain View CA, July 22, 2019
110. Keynote, CARSTAR Annual Summit, “Autonomous Vehicles”, Chicago IL, July 10, 2019
111. Keynote, BBVA Annual Retreat, “Machine Learning and Big Data”, Madrid, Spain, June 26, 2019
112. Keynote, Cargill Annual Retreat, “Machine Learning and Big Data”, Wichita KS, June 24, 2019
113. Invited Speaker, Italy Singularity Summit, “Machine Learning and Big Data”, Rome, Italy, June 18, 2019
114. Keynote, IBIS Automotive Summit, “Artificial Intelligence and the automotive industry”, Milan Italy, June 10, 2019
115. Invited Speaker, BWI GmbH, “Machine Learning and Big Data”, Berlin Germany, June 4, 2019
116. Invited Speaker, Singularity University EIP, “Trends in Robotics and AI”, Mountain View CA, May 20, 2019
117. Keynote, World Retail; Congress, “The Six Waves of AI”, Amsterdam, Netherlands, May 15, 2019
118. Keynote, Canadian Assoc of Pharmacy, “The Six Waves of AI”, Carlsbad, CA, May 7, 2019
119. Invited Speaker, Singularity University WE Family Event, “Trends in Robotics and AI”, Mountain View CA, May 4, 2019
120. Invited Speaker, COBPEA, “Trends in Robotics and AI”, Mountain View CA, April 29, 2019
121. Keynote, EO Global Leaders’ Summit GLC, “The Six Waves of AI”, Maccau, China, April 14, 2019
122. Invited Speaker, Booz Allen, “Trends in Robotics and AI”, Washington DC, March 26, 2019
123. Invited Speaker, Temaseak, “Smart Cities”, Singapore, March 20, 2019
124. Invited Speaker, Citibank Wealth Management, “Trends in Robotics and AI”, Mountain View CA, March 13, 2019
125. Keynote, Lockheed Martin Retreat, “Trends in Robotics and AI”, Dallas/Fort Worth, TX, March 6, 2019
126. Invited Speaker, Finish Posti, “Machine Learning and Big Data”, Helsinki Finland, Feb 28, 2019

127. Keynote, AAWC, “AI in retail”, The World Congress of the International Advertising Association, Kochi, India, Feb 22, 2019
128. Colloquium, Duke University Pearsall Lecture, “Automating Discovery”, Durham NC, Feb 13, 2019
129. Invited Speaker, Elior Group, “Machine Learning and Big Data”, Mountain View CA, Feb 6, 2019
130. Invited Speaker, DoD, “Machine Learning and Big Data”, Mountain View CA, Jan 29, 2019
131. Keynote, Verifacts , “Driverless Cars and the Road ahead”, Toronto Canada, Jan 23, 2019
132. Colloquium, Washington University, “Automating Discovery”, Seattle WA, Jan 17, 2019
133. Invited Speaker, Quantonomics / Goldman Sachs, “The Six Waves of Artificial Intelligence”, New York NY, Jan 10, 2019
134. Invited Speaker, YPO Gold , “The Six Waves of Artificial Intelligence”, Zurich Switzerland, Dec 13, 2018
135. Invited Speaker, Schindler Exec Retreat, “The Six Waves of Artificial Intelligence”, Lucerne Switzerland, Dec 12, 2018
136. Invited Speaker, Cargill, “Machine Learning and Big Data”, Mountain View CA, Nov 9, 2018
137. Keynote, the Growth Faculty, “The Six Waves of Artificial Intelligence”, Sydney Australia, Nov 15, 2018
138. Invited Speaker, Pactual Asset Management, “Machine Learning and Big Data”, Mountain View CA, Nov 9, 2018
139. Keynote, Mexico Singularity Summit, “Machine Creativity”, Puerto Valencia, Mexico, Nov 7, 2018
140. Invited Speaker, The Entrepreneur Network, “Machine Learning and Big Data”, Mountain View CA, Nov 6, 2018
141. Colloquium, University of Connecticut, “Automating Discovery”, UConn, Nov 5, 2018
142. Invited Speaker, Citibank 10x Strategy, “Artificial Intelligence in Finance”, New York NY, Nov 1, 2018
143. Keynote, Entrepreneur Organization, “Machine Creativity”, San Francisco CA, Oct 18, 2018
144. Keynote, Altair Summit, “Machine Creativity”, Paris, France, Oct 17, 2018
145. Keynote, Deloitte Mexico, “AI in retail”, Mexico City, Mexico, Oct 10, 2018
146. Invited Speaker, Jasonville Energy Authority, “Machine Learning and Big Data”, Jacksonville FL, Oct 5, 2018

147. Invited Speaker, Equity Residential, “Machine Learning and Big Data”, Mountain View CA, Oct 3, 2018
148. Keynote, Italy Summit, “Machine Creativity”, Milan, Italy, Oct 2, 2018
149. Keynote, Agora Summit, “The Six Waves of Artificial Intelligence”, Tucson Arizona, Sep 28, 2018
150. Invited Speaker, Exxon Mobil, “Machine Learning and AI”, Houston TX, Sep 27, 2018
151. Invited Speaker, Raymond India, “Big Data”, Mumbai India, Sep 26, 2018
152. Keynote, Deloitte Ireland, “The Six Waves of Artificial Intelligence”, Dublin, Ireland, Sep 11, 2018
153. Invited Speaker, UPM, “Big Data”, Mountain View CA, Aug 27, 2018
154. Keynote, Asia Pacific Global Impact Challenge, “The Six Waves of AI”, Taiwan, Aug 10, 2018
155. Invited Speaker, A360, “Trends in Machine Learning and AI”, Mountain View CA, July 30, 2018
156. Invited Speaker, Singularity University, Executive Program, “Trends in Robotics and AI”, Mountain View CA, July 22, 2018
157. Invited Speaker, CASVI, “Trends in Machine Learning and AI”, Mountain View CA, July 18, 2018
158. Keynote, FAB14, “Food Printing”, Toulouse, France, July 16, 2018
159. Invited Speaker, Google/Australia, “Trends in Machine Learning and AI”, Mountain View CA, July 12, 2018
160. Invited Speaker, Singularity University, Exponential Innovation Program, “Trends in Robotics and AI”, Mountain View CA, July 9, 2018
161. Invited Speaker, LG Academy, “5G”, Mountain View CA, June 11, 2018
162. Keynote, Positive Impact, “The Six Waves of Artificial Intelligence”, Milan, Italy, June 20, 2018
163. Keynote, Accenture, “The Six Waves of Artificial Intelligence”, Frankfurt Germany , June 13, 2018
164. Invited Speaker, Peoplefund, “Trends in Machine Learning and AI”, Mountain View CA, June 11, 2018
165. Invited Speaker, Google/Singapore, “Machine Learning and AI”, Mountain View CA, June 7, 2018
166. Invited Speaker, Exxon Mobil, “Machine Learning and Digital Twins”, Houston TX, June 6, 2018

167. Keynote, STEP Miami, “Artificial Intelligence”, Miami FL, May 31, 2018
168. Guest Speaker, Unilever, “The Six Waves of Artificial Intelligence”, Palo Alto CA, May 29, 2018
169. Keynote, 21 Foundation, “Artificial Intelligence and Robotics”, Tokyo Japan, May 24, 2018
170. Invited Speaker, Barclays Bank, “The Six Waves of Artificial Intelligence”, London UK, May 18, 2018
171. Keynote, Inter-American Development Bank (IDB), “Autonomous Vehicles and the road ahead”, Washington DC, May 17, 2018
172. Keynote, Young Professional Organization (YPO), Dallas Chapter, “Artificial Intelligence”, Dallas, TX, May 10, 2018
173. Guest Speaker, Singularity Executive training program, “Artificial Intelligence and Robotics”, Moffet Field CA, May 6, 2018
174. Keynote, Executive Program Toronto, “AI and Robotics”, Toronto ON, May 1, 2018
175. Keynote, Young Professional Organization (YPO) of Switzerland, “Artificial Intelligence”, Geneva, Switzerland, April 26, 2018
176. Guest Speaker, Legal & General Investment Management America, Inc. (LGIMA), “Trends in Data Science”, Chicago IL, April 17, 2018
177. Guest Speaker, Singularity Executive training program, “Artificial Intelligence and Robotics”, Moffet Field CA, March 25, 2018
178. Guest Speaker, Grupo Salinas Executive retreat, “Artificial Intelligence”, Mexico City, Mexico, March 22, 2018
179. Keynote, Singularity University Czech Summit, “Curious and Creative Machines”, Prague, Czech Republic, March 6, 2018
180. Keynote, Latham & Watkins Annual Summit, “Trends in Artificial Intelligence”, New York NY, March 2, 2018
181. Invited Talk, Grupo Bal Retreat, “Trends in Artificial Intelligence and Robotics”, San Francisco CA, Feb 28, 2018
182. Guest Speaker, Citibank Private Bank, “Artificial Intelligence”, Mexico City, Mexico, Feb 22, 2018
183. Colloquium, Iowa State University Food Science Department, “Food Printing”, Des Moines IA, Feb 14, 2018
184. Invited Talk, Exxon Mobile Executive training, “Trends in Artificial Intelligence and Robotics”, Houston TX, Feb 20, 2018

185. Colloquium, Columbia University Astrophysics Department annual Radical Hypothesis Lecture, “Robot Scientists”, New York NY, Feb 14, 2018
186. Invited Talk, Google/Scandinavia “The four exponentials of Artificial Intelligence”, Mountain View CA, Feb 13, 2018
187. Keynote, Syracuse Research Corporation (SRC) “The six waves of Artificial Intelligence”, Syracuse NY, Feb 9, 2018
188. Keynote, Barclays Bank Summit, “The Compounding Exponentials of AI”, London, UK, Feb 8, 2018
189. Guest Speaker, The Executive Network (TEN), “Artificial Intelligence and Robotics”, Mountain View CA, Feb 6, 2018
190. Guest Speaker, Singularity Executive training program, “Artificial Intelligence and Robotics”, Moffet Field CA, Jan 30, 2018
191. Guest Speaker, Citibank Private Bank, “Artificial Intelligence”, New York NY, Jan 24, 2018
192. Invited Talk, Singularity University Summit, “Artificial Intelligence”, Brussels, Belgium, Jan 23, 2018
193. Keynote, Deloitte Future of Retail Summit, “AI and retail”, New York NY, Jan 16, 2018
194. Invited Talk, SEAS Alumni Event, “the Six Waves of Artificial Intelligence”, New York NY, Jan 16, 2018
195. Invited Talk, Jardine Matheson, “Artificial Intelligence and Robotics”, Mountain View, CA, Jan 10, 2018
196. Keynote, Stuyvesant High School Annual Splash, “Artificial Intelligence and Robotics”, New York NY, Dec 16, 2017
197. Invited Talk, Deloitte Partner meeting “Artificial Intelligence and Robotics”, Dallas, TX, Dec 7, 2017
198. Invited Talk, Raizen “Trends in Artificial Intelligence and Robotics”, Mountain View, CA, Nov 16, 2017
199. Keynote, NY Annual conference on Manufacturing an Innovation, NEXT 17, “The six waves of Artificial Intelligence”, Syracuse NY, Nov 17, 2017
200. Invited Talk, Citibank Financial, “Trends in Artificial Intelligence and Fintech”, Mountain View, CA, Nov 16, 2017
201. Keynote, Tencent Annual Summit, “AI, Creativity, and Free Will”, Chengdu, China, Nov 8, 2017
202. Invited Talk, Bridge 37, “Trends in Artificial Intelligence and Robotics”, Mountain View, CA, Nov 1, 2017

203. Keynote, Citibank private bank summit, “Trends in Artificial Intelligence and Robotics”, Shanghai, China, Oct 19, 2017
204. Invited Talk World Knowledge Fair (WKF 2017), “How 3D Printing will change our Future”, Seoul, Korea, Oct 18, 2017
205. Invited Talk World Knowledge Fair (WKF 2017), “The Fourth Industrial Revolution and the future of Manufacturing”, Seoul, Korea, Oct 17, 2017
206. Keynote, AI and Society, “The Six Waves of Artificial Intelligence”, Tokyo, Japan, Oct 10, 2017
207. Invited Talk, Exxon Mobile Executive training, “Trends in Artificial Intelligence and Robotics”, Houston TX, Oct 3, 2017
208. Invited Talk, “Stanley Black & Decker, The four exponentials of Artificial Intelligence”, Mountain View CA, Sep 28, 2017
209. Keynote, PricewaterhouseCoopers (PWC) partner annual summit, “Trends in Artificial Intelligence”, Banff, Canada, Sep 27, 2017
210. Invited Talk, Banco Bilbao Vizcaya Argentaria, BBVA “Artificial Intelligence in fintech”, , Mountain View CA, Sep 20, 2017
211. Invited Presentation, Worlds Fair Nano Main Stage: “The Future of Robots”, Brooklyn NY, Sep 16, 2017
212. Keynote, Canadian Autobody Conference, “Will driverless cars need collision repair?”, St John’s, Newfoundland, Canada, Sep 15, 2017
213. Keynote, Altair User Summit, “Curious and Creative Machines”, Los Angeles CA, Sep 13, 2017
214. Keynote, Bosch Future of Urban Mobility, “The future of Mobility”, London UK, Sep 8, 2017
215. Invited Talk, Google Norway, “The four exponentials of Artificial Intelligence”, Mountain View CA, Aug 30, 2017
216. Invited Talk, “Trends in Artificial Intelligence”, NEC AgTech, Mountain View CA, Aug 29, 2017
217. Invited Talk, “Trends in Artificial Intelligence”, Inter-American Development Bank, Mountain View CA, Aug 25, 2017
218. Invited Talk, “The future of Mobility”, NBC, Rosewood Sand Hill, CA, Aug 24, 2017
219. Invited Talk, “Driverless cars and the road ahead”, Bosch China, Shanghai China, Aug 7, 2017

220. Keynote, “Curious and Creative Machines”, GEEK PARK Rebuild 2017 Summit, Beijing China, Aug 5, 2017
221. Invited Talk, “Driverless cars and the road ahead”, GEEK PARK Rebuild 2017 Summit, Beijing China, Aug 5, 2017
222. Invited Talk, “Artificial Intelligence in retail”, AB InBev, New York NY, Aug 1, 2017
223. Keynote, ACM/Eurographics Symposium on Computer Animation (SCA) ‘17, “Self Simulating Systems”, Los Angeles, CA, July 28, 2017
224. Keynote, Genetic and Evolutionary Computation Conference, “Adversarial Coevolution”, Berlin, Germany, July 19, 2017
225. Invited Talk, “This Six Waves of AI”, Comfama, Mofffet Field CA, June 22, 2017
226. Invited Talk, “This Six Waves of AI”, Oracle, Mountain View CA, June 20, 2017
227. Invited Talk, “Trends in Artificial Intelligence and Robotics”, Vix, Key Largo, FL, June 13, 2017
228. Invited Talk, “Trends in Artificial Intelligence and Robotics”, Googleplex, Mountain View CA, June 12, 2017
229. Keynote, GE Global Research, “Trends in Additive Manufacturing”, Niskayuna, NY, June 6 2017
230. Keynote, Earnest Young Compliance & Technology Forum, “Robotics, cognitive computing and machine learning — the fad or the future?”, New York NY, May 17, 2017
231. Invited Talk, Dyson, “Trends in Artificial Intelligence”, Pa lo Alto, CA, May 16, 2017
232. Invited Presentation, Guild 21, “Autonomous Vehicles: Will we need body shops?”, (online), May 11, 2017
233. Invited Talk, Thales, “Trends in Artificial Intelligence”, Palo Alto, CA, May 4, 2017
234. Keynote, Deming Forum, “The Six Waves of Artificial Intelligence”, Columbia Business School, New York NY, May 2, 2017
235. Invited Talk, Inter Dev Bank (IDB), “Trends in Artificial Intelligence”, Boston MA, April 22, 2017
236. Keynote, Automotive Dealer Council Meeting, “Driverless Cars and the road ahead”, Miami FL, April 21, 2017
237. Invited Talk, Singularity University IPP, “Convergence: Driverless Cars and AI”, Dan Francisco, CA March 30, 2017
238. Keynote, The Rubin Museum of Art, “AIs and Avatars”, New York, NY, March 29, 2017
239. Invited Talk, Singularity University Executive Program, “Driverless Cars and the future of the city”, Palo Alto, CA March 23, 2017

240. Invited Talk, Singularity University Executive Program, “Digital Manufacturing”, Palo Alto, CA March 21, 2017
241. Invited Talk, APS meeting, “The Robotic Scientist”, New Orleans LA, March 17, 2017
242. Keynote, Tate & Lyle Texturant, “Print and Eat – The story behind food printing”, Chicago IL, March 8, 2017
243. Invited Talk, Deutsche Telekom, “Artificial Intelligence”, Bonn, Germany, March 3, 2017
244. Keynote, Cultiv8, “Print and Eat – The story behind food printing”, Monterey, CA, March 1, 2017
245. Invited Talk, Next Era, “Trends in Artificial Intelligence”, Palm Beach FL, Feb 2, 2017
246. Invited Talk, Steelcase, “Trends in Artificial Intelligence”, Palo Alto CA, Jan 18, 2017
247. Keynote, Deloitte Executive Training, “The compounding exponentials of Artificial Intelligence”, New York NY, Jan 17, 2017
248. Keynote, Inside 3D Printing, “Additive Manufacturing – The next 25 years”, San Diego, CA, Dec 14, 2016
249. Keynote, Turkey Innovation Week, “The compounding exponentials of Artificial Intelligence”, Istanbul, Turkey, Dec 10, 2016
250. Keynote, Credit Swiss Bank, “The compounding exponentials of Artificial Intelligence”, Zurich, Switzerland, Dec 5, 2016
251. Colloquium, “Driverless cars and the road ahead”, Villanova University, Villanova, PA, Dec 2, 2016
252. Keynote, Israel Aerospace Industries, “Additive Manufacturing – The next 25 years”, Tel Aviv, Israel, Nov 24, 2016
253. Keynote, ASME ICME, “Automating Discovery in Mechanical Engineering”, Haifa, Israel, Nov 21, 2016
254. Keynote, CTO Forum Rethink Disruption, “The compounding exponentials of Artificial Intelligence”, Half Moon Bay, CA, Nov 4, 2016
255. Invited panelist, Citibank autumn dialogs, “Artificial Intelligence”, San Francisco CA, Nov 2, 2016
256. Invited Briefing, Deutsche Telekom Board of directors, “Robotics and AI”, (via skype) Oct 28, 2016
257. Keynote, Holmes Global PR Summit, “The compounding exponentials of Artificial Intelligence”, Miami, FL, Oct 26, 2016
258. Invited Talk, Leadership organization of chief executives (YPO), “Exponential Trends in Robotics”, Palo Alto, CA, Oct 24, 2016

259. Invited Presentation, The Rubin Museum of Art, "'Chasing Consciousness", New York, NY, Oct 21, 2016
260. Invited Talk, Global Commercial Real Estate Association (SIOR), "Driverless cars and real estate", New York, NY, Oct 21, 2016
261. Colloquium, Purdue University, Mechanical Engineering, "Automating Discovery", West Lafayette, IN, October 20, 2016
262. Keynote, Kroger Inc. Strategic retreat, "Trends in Artificial Intelligence", Cincinnati OH, October 5, 2016
263. Keynote, Eli Lilly Strategic retreat, "Trends in Artificial Intelligence", Mexico City, Mexico, September 28, 2016
264. Colloquium, NYU Tandon School of Engineering, "Automating Discovery", Brooklyn NY, September 27, 2016
265. Keynote, Harman International Strategic Management, "Robotics and Artificial Intelligence", Montreal, Canada, September 20, 2016
266. Invited Talk, Singularity Summit, "Robotics and Artificial Intelligence", Amsterdam, Netherlands, September 12, 2016
267. Invited Talk, RWE, "Robotics and Artificial Intelligence", Essen, Germany, August 22, 2016
268. Invited Talk, Weber Shandwick, "Trends in AI", New York NY, August 2, 2016
269. Invited Talk, Google NY, "Automatic Scientific Discovery", New York NY, August 1 2016
270. Panel, Northeast ME Chairs meeting, "Makerspaces in ME Education", University of Pennsylvania Mechanical Engineering Dept., Philadelphia, PA, July 29, 2016
271. Invited Talk, "Exponential trends in Robotics", Hershey, PA, June 28 2016
272. Invited Talk, "Exponential trends in Artificial Intelligence", AXA, New York NY, June 14 2016
273. Invited Talk, "Can a robot turn a canvas into a masterpiece?", Google Conference on Computer Generated Art, San Francisco CA, June 1, 2016
274. Invited Talk, "Trends in Additive Manufacturing", US Air Force Research Lab (AFRL), Dayton OH, May 26 2016
275. Panel, "Self-awareness", NY Academy of Sciences, New York NY May 23, 2016
276. Colloquium, "Trends in Additive Manufacturing", ETH Zurich, Zurich Switzerland, May 17, 2016
277. Keynote, "Robotics in Manufacturing", Singularity University Exponential Manufacturing, Boston MA, May 10, 2016

278. Colloquium, “Automating Discovery: The robot Scientist”, Stanford University Biomedical Engineering Department, Palo Alto CA, May 9, 2016
279. Colloquium, “Automating Discovery: The robot Scientist”, TCNJ, College of Engineering, April 20, 2016
280. Plenary, “Can a robot turn a canvas into a masterpiece?”, MIT Conference on Computational Fabrication, Boston MA, April 19, 2016
281. Invited Talk, “Robotics and AI”, NexGen, Hong Kong, China April 13, 2016
282. Keynote, “Trends in 3D Printing”, Stratasys event, Denver CO, April 1, 2016
283. Invited Talk, “Trends in Robotics”, Dutch Royal Airforce retreat, Rotterdam Netherlands, March 31, 2016
284. Colloquium, “Automating Discovery: The robot Scientist”, University of Texas Southwestern Medical Center, Dallas TX, March 18, 2016
285. Invited Talk, “Exponential Trends in AI”, Procter & Gamble, Cincinnati OH, March 2, 2016
286. Invited Talk, “Exponential Trends in Robotics”, Walmart Corp, March 1, 2016
287. Keynote, “Trends in Artificial Intelligence”, Tec De Monterrey, Mexico City, Mexico, December 3, 2015
288. Invited Talk, “Exponential Trends in Robotics”, Singularity University, Johannesburg, South Africa, Nov 17, 2015
289. Plenary, “Creative Machines”, MIT Technology Review Annual Conference, Boston MA, November 3, 2015
290. Keynote, “Food Printing”, Food Vision USA, Chicago IL, October 29, 2015
291. Invited Talk, “The future of 3D Printing”, Makerbot Industries, Brooklyn NY, Oct 27, 2015
292. Invited Talk, “Robotics and AI”, Singularity University, Moffet Field CA, Oct 19, 2015
293. Colloquium, “Automating Discovery”, University of Rochester, Computer Science Department, Rochester NY, October 14, 2015
294. Keynote, “Additive Manufacturing for Long Term Care”, OnLok Sustainable Long Term Care Conference, UCSF, October 8, 2015
295. Invited Seminar, “AI And Robotics”, Naspers Media Retreat, San Francisco, CA, Septermber 3, 2015
296. Keynote, “3D Printing - The next 25 Years”, Stratasys User Forum, Seoul, Korea, Aug 28, 2015
297. Keynote, “3D Printing - The next 25 Years”, Stratasys User Forum, Tokyo Japan, Aug 27, 2015

298. Keynote, “3D Printing - The next 25 Years”, Stratasys User Forum, Shanghai China, Aug 25, 2015
299. Invited Talk, “3D Printing - The next 25 Years”, USG/CENTRA, Washington DC, Aug 19, 2015
300. Keynote, “3D Printing - The next 25 Years”, ASME AM3D, Boston MA, Aug 3, 2015
301. Invited Talk, “Print and Eat - Challenges and Opportunities in Food Printing”, Florida Academy of Nutrition and Dietetics, Orlando FL, July 15, 2015
302. Keynote, “3D Printing - The next 25 Years”, Select Bio, Boston MA, June 8, 2015
303. Keynote, “3D Printing - The next 25 Years”, Potter County School District, June 17, 2015
304. Keynote, “3D Printing - The next 25 Years”, Nikkei Global ICT Summit, Tokyo Japan, June 9, 2015
305. Invited Talk, “Self-Aware Systems”, Northrop Grumman, Los Angeles, June 3, 2015
306. Invited Talk, “The Future of Robotics and AI”, Barclays Bank retreat, Johannesburg, May 27, 2015
307. Keynote Speaker, “Automated Modeling of Dynamical Systems”, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 21, 2015
308. Invited Talk, “The Future of Robotics and AI”, Caterpillar Retreat, Peoria IL, May 20, 2015
309. Keynote, “3D Printing - The next 25 Years”, BBC Executive Forum, New York, NY May 7, 2015
310. Invited Talk, “Print and Eat - Challenges and Opportunities in Food Printing”, General Mills Inc., Minneapolis, MN, May 5, 2015
311. Keynote, “3D Printing- The next 25 Years”, Materialse Annual User Forum, Brussels, Belgium, April 23, 2015
312. Keynote, “3D Printing- The next 25 Years”, Shenzhen Innovation Fair, Shenzhen, China, April 19, 2015
313. Invited Talk, “3D Printing- The next 25 Years”, The DOW Chemical Company, Houston Tx,, April 7, 2015
314. Colloquium Speaker, “Sentient Robotics”, Georgia Tech Robotics Institute, Atlanta GA, March 4, 2015
315. Keynote Speaker, “The Next 25 Years of 3D Printing”, Tissue Engineering & Bioprinting: Research to Commercialization Conference, Boston, MA, Feb 9-10, 2015,
316. Colloquium Speaker, “The Next 25 Years of 3D Printing”, Clarkson University, Mechanical Engineering Sept, Potsdam NY, Feb 6, 2015
317. Invited Speaker, “Sentient Robotics”, Baidu BIG Talk, San Francisco CA, Jan 30, 2015

318. Keynote Speaker, “3D printing materials”, Welding, Joining and Additive Manufacturing International Conference (WJAM), Tel Aviv, Israel, January 18-20, 2015
319. Invited Speaker, “Print and Eat: The future of Food printing”, Food Systems Global Summit, Cornell University, Dec 8, 2014
320. Invited Speaker, “The Future of 3D Printing”, 3M, St. Paul MN, Nov 7 2014
321. Keynote Speaker, “3D printing materials”, New Horizons in 3D Printing and Digital and Additive Manufacturing, Stony Brook, Long Island, NY, Sep 30, 2014
322. Invited Speaker “The Robot Scientist”, Annual meeting of the NAE, Mechanical Engineering Section, Washington DC, September 29, 2014
323. Colloquium Speaker, “Automated discovery”, Princeton University ME Dept, Princeton NJ, Sep 19, 2014
324. Keynote Speaker, “The Future of 3D Printing”, DoD workshop on Multifunctional Materials, Arlington VA, Aug 18, 2014
325. Keynote Speaker, “The next 225 Years of 3D Printing”, Solid Freeform fabrication (SFF) 14, Austin TX, Aug 5, 2014
326. Invited Plenary Speaker, “The Robotic Scientist”, Unconventional Computation & Natural Computation (UCNC) 2014, London ON, Canada, July 15, 2014
327. Invited Speaker, “3D printing materials”, Wyss Symposium: Adaptive Bioinspired Materials, Boston MA, June 27, 2014
328. Plenary Beacon Lecturer, “Food Printing”, Institute of Food Technologists (IFT) Annual Meeting, New Orleans, LA June 23, 2014
329. Invited speaker, “Printing electronics”, Futurapolis, May 17, Toulouse France
330. Invited Speaker, “The Future of 3D Printing”, Science and Engineering Festival, Washington DC, April 24, 2014
331. Invited Speaker, “3D Printing: The promise and Peril”, James Madison University, Harrisonburg VA, April 24, 2014
332. Invited Speaker, “3D printing in Nanotechnology”, Nano 2014, Tel Aviv, Israel, March 25, 2014
333. Colloquium Speaker, “Food printing”, Hebrew University, Food Science Dept, Israel, March 23, 2014
334. Keynote Speaker, “The future of 3D printing in Education”, Society for Information Technology and Teacher Education (SITE), Jacksonville, FL March 18, 2014
335. Annual Winegard Visiting Lecturer, “The future of 3D printing: Principles and technologies”, University of Guelph, March 13, 2014, Guelph ON, Canada

336. Invited Speaker, “Additive Manufacturing as a Transformative Manufacturing Technology”, 2014 AAAS Annual Meeting, Chicago IL, Feb 13-17, 2014
337. Colloquium Speaker, “Additive Manufacturing as a Transformative Manufacturing Technology”, Carnegie Mellon University Robotics Institute, Pittsburg PA, Nov 22, 2013
338. Congress Wide Plenary, “The future of 3D printing”, ASME 2013 Mechanical Engineering Congress & Exposition, San Diego, California, November 15-21, 2013
339. Keynote Speaker, “Thinking outside the CAD box: Geometric design in the age of 3D printing”, SIAM Conference on Geometric and Physical Modeling (GD/SPM 13), Denver, Colorado, November 11 – 14, 2013.
340. Keynote, “The future of 3D printing: Principles and technologies”, Juniata College, Nov 6, 2013, Huntingdon, PA
341. Invited Speaker, “The future of 3D printing: Principles and technologies”, BP Headquarters, Oct 30, 2013, Houston TX
342. Invited Speaker, “What do robots dream of? What we can learn from how machines view themselves”, Industry Leader forum, Oct 29, 2013, New York NY
343. Keynote Speaker, “Automating Scientific Discovery: Distilling Natural Laws from Experimental Data, from particle physics to computational biology”, Volen Center for Complex Systems retreat, Woods Hole, MA, Oct 18, 2013
344. Keynote Speaker, “The future of 3D printing: The promise and peril of a machine that cam make (almost) anything”, Toulouse, France, Oct 12, 2013
345. Invited Speaker, “Automating Scientific Discovery: Distilling Natural Laws from Experimental Data, from Robotics to Material Science”, AIRBUS, Toulouse, France, Oct 11, 2013
346. Colloquium speaker, “The future of 3D Printing”, Columbia School of Architecture and Design, September 27, 2013.
347. Colloquium speaker, “Automating Discovery”, Columbia Mechanical Engineering Department, September 27, 2013.
348. Keynote, “The future of 3D printing”, Maker Faire, Toronto ON, Canada, Sep 21, 2013
349. Colloquium, “The future of 3D Printing”, Mechanical Engineering Department, Northwestern Polytechnical University, Xi’an, China, June 28, 2013
350. Invited Speaker, “The future of 3D Printing”, 2013 International Forum on New Industry Revolution & Additive Manufacturing, Chinese Mechanical Engineering Society, Beijing, China, June 26, 2013

351. Invited Speaker, “The future of 3D Printing”, American Chamber of Commerce-China, Beijing, June 25, 2013
352. Keynote Speaker, “Digital Fashion”, 1st International Conference on Digital Fashion, London College of Fashion, London, UK, May 16 – 17, 2013.
353. Invited Speaker, National Academy of Sciences’ Committee on Science, Technology, and Law (CSTL), Washington, DC, May 13, 2013.
354. Invited Colloquium, “Scientific Data Mining”, Complex Systems, University of Alaska Anchorage, Feb 15, 2013
355. Invited Colloquium, “Scientific Data Mining”, Complex Systems, SUNY Binghamton, Binghamton NY, Feb 11, 2013
356. Invited Colloquium, “Accelerating Discovery”, Electrical Engineering Department, Technion - Israel Institute of Technology, Haifa, Israel, Dec 12, 2012
357. Invited Review Lecturer, Israel Physical Society Conference, “Accelerating Discovery”, Hebrew University, Jerusalem, Israel, Dec 9, 2012
358. Invited Speaker, “Jamming Matter for robotics applications”, US-Israel Emerging Technology Discussions, Boson MA, Nov 28, 2012
359. Invited Speaker, “Matter Compilers”, DMC 2012, Orlando FL, Nov 26, 2012
360. Invited Speaker, “The Future of 3D Printing”, NEXT: The Event for Technology, Manufacturing & Innovation, Syracuse, November 8, 2012.
361. Invited Speaker, “Citizen Science ", AAAI Fall meeting, Washington DC, Nov 2, 2012
362. Invited Speaker, “Jamming Robotics ", U of Chicago, Oct 28, 2012
363. Invited Colloquium, “Scientific Data Mining”, Stockholm University, Sweden, Oct 9, 2012
364. Invited Colloquium, “Scientific Data Mining”, EPFL, Lausanne Switzerland, Oct 8, 2012
365. Invited Speaker, “The Robotic Scientist", Northwestern, Chicago IL. Oct 1, 2012
366. Plenary Gilberth Speaker, “Programmable Matter—The Shape of Things to Come", National Academy of Engineering, Washington DC, Sep 30, 2012
367. keynote Speaker, “Digital Matter", Betascape 2012, Sep 22, 2012
368. Invited Colloquium, “Scientific Data Mining”, Harvard University Applied Physics Dept, Boston MA, Sep 21, 2012
369. Invited Colloquium, “Scientific Data Mining”, Harvard University Systems Biology Dept, Boston MA, Sep 20, 2012
370. Invited Speaker, “Self Reflecting Robotics", Annual Academy of Management meeting, Boston MA, Aug 4, 2012

371. Invited Speaker, “Evolutionary Robotics", Institute for Advanced Studies summer school in Theoretical Physics, Princeton NJ, July 19, 2012
372. Invited Speaker, “Digital Matter", Singularity University 2012, San Jose CA, Jun 26, 2012
373. Invited Speaker, “The new world of 3D printing", IdeaCity 2012, Toronto ON, Jun 13, 2012
374. Invited Speaker, “The Robotic Scientist", Stanford SLAC, Palo Alto CA. June 4, 2012
375. Invited Speaker, “Design in the age of 3D printing", Architectural Design Symposiyum, London UK, May 11, 2012
376. Invited Speaker, “Biologically Inspired Robotics", USA Science & Engineering Festival (USASEF), Washington DC, April 27, 2012
377. Invited Speaker, “Design in the age of 3D printing", Design for Manufacturing Forum, Brooklyn NY, April 26, 2012
378. Invited Speaker, “Eureqa!", Microsoft Think Next, Tel Aviv, Israel, April 22, 2012
379. Invited Speaker, “Matter Compilers – Design in the age of 3D printing", Congress on the future of Engineering Software (COFES), Scottsdale AZ, April 13, 2012
380. Invited Symposium X Speaker, “Programmable Matter—The Shape of Things to Come", MRS Annual meeting, San Francisco CA, April 12, 2012
381. Seminar Speaker, “The Robotic Scientist", Caltech Astronomy Dept, Pasadena CA. April 11, 2012
382. Colloquium Speaker, “Automating Scientific Discovery", Brandeis University CS Dept, Waltham MA, April 5, 2012
383. Invited Speaker, “Automating Scientific Discovery", Signal processing and inference for the physical sciences, Royal Society, London UK, March 26, 2012
384. Invited Speaker, “Symbolic Data Mining", NECSI, Cambridge MA, Feb 17, 2012
385. Invited Speaker, “Bioinspired Robotics", Forum Informatik, Aachen, Germany, Jan 23, 2012
386. Invited Speaker, “My Robot is Smarter Than Yours: Cognitive Robotics and AI", Swissnex, San Francisco CA, January 19, 2012
387. Colloquium Speaker, “Programmable Matter", Rochester Inst. Of Technology, Rochester NY, Oct 26, 2011
388. Colloquium Speaker, “Machine Science", Princeton Plasma Physics Laboratory, Princeton NJ, Oct 25, 2011
389. Invited Speaker, “Data mining biological Systems", New Frontiers in Systems Biology, Rehovoth, Israel, Oct 3, 2011
390. Invited Speaker, “Frontiers in Additive Manufacturing", NAE US Frontiers of Engineering, Palo Alto, CA, September 19, 2011

391. Invited Speaker, “Programmable Matter", Perimeter Institute, Hawking wing opening ceremony, Waterloo ON, September 18, 2011
392. Invited Speaker, “Fab@Home", Maker Fair, Queens, NY, September 17, 2011
393. Colloquium Speaker, “Machine Science", Vanderbilt University, Nashville TN, Sep 8, 2011
394. Invited Speaker, “Machine Science", Acceleration Discovery: Human Computer Symbiosis 50 Years On, Park City, UT, July 25, 2011
395. Invited Speaker, "Reverse Engineering Stochastic Systems", Uncertainty in Artificial Intelligence (UAI11), Barcelona, Spain, July 16, 2011
396. Invited Plenary, “Reverse Engineering Dynamical Systems", International Conference on Complex Systems (ICCS 2011), Cambridge MA, June 27, 2011
397. Keynote Speaker, “Analysis by Synthesis", 2011 IEEE Congress on Evolutionary Computation (CEC 2011), New Orleans, LA, June 9, 2011
398. Invited Speaker, “Bioinspired Robotics", World Science Fest (WSF11), New York NY, June 4, 2011
399. Invited Plenary, “Soft Robotics", European Commission Future and Emerging Technologies (FET11), Budapest Hungary, May 5, 2011
400. Invited Panelist, “3D Printing Technologies", 3D/DC, Washington DC, April 28, 2011
401. Colloquium Speaker, "The Robotic Scientist", Union College CS Dept., Schenectady NY, April 21, 2011
402. Colloquium Speaker, "Reverse Engineering Dynamical Systems", University of Chicago Computation Institute, Chicago IL, March 7, 2011
403. Keynote Speaker, “Self Reflective Systems", Int. Workshop on Self Organizing Systems, Karlsruhe, Germany, February 24, 2011
404. Invited Speaker, “Bioprinting", American Association for the Advancement of Science (AAAS11), February 21, 2011
405. Invited Speaker, “Self Reflective Robotics", American Association for the Advancement of Science (AAAS11), February 19, 2011
406. Invited Speaker, “The Limits of Science”, Science on Saturday Lecture Series, Princeton Plasma Physics Laboratory, January 29, 2011
407. Colloquium Speaker, “Self Reflective Machines", Psychology Dept., Indiana University, Bloomington IN, January 24, 2011
408. Colloquium Speaker, “Distilling Natural Laws from Experimental Data", Physics Dept., Weizmann Inst, of Science, Rehovoth, Israel, Dec 30, 2010

409. Colloquium Speaker, “Digital Materials", Pixel Club, Computer Science Dept., Technion - Israel Inst. of Technology, Haifa Israel, Dec 28, 2010

410. Invited Seminar, "Reverse Engineering Dynamical Systems", Los Alamos National Labs, Albuquerque NM, Dec 8, 2010

411. Keynote Speaker, “Mining Dynamical Systems - From Cognitive Robotics to Computational Biology”, European Conference on Machine Learning (ECML 2010), Barcelona, Spain, September 22, 2010

412. Invited Speaker, “Automating Science”, Philosophical Society of Washington, Washington DC, September 10, 2010.

413. Colloquium Speaker, “Analysis by Synthesis", Computer Science Dept, École Polytechnique Fédérale de Lausanne (EPFL) , Lausanne, Switzerland, September 5, 2010

414. Keynote Speaker, “Analysis by Synthesis", 9th International Conference on Evolvable Systems (ICES 2010), York, UK, September 6, 2010

415. Plenary Speaker, “Soft Evolutionary Robotics”, 12th International Conference on the Synthesis and Simulation of Living Systems (ALIFE XII), Odense, Denmark, August 20, 2010

416. Invited Speaker, “Rapid Assemblers”, Fab6, Amsterdam, Netherland, August 18, 2010

417. Invited speaker, “Automating Scientific Discovery”, Princeton Institute for Advanced Studies, Princeton NJ, 15 April 2010

418. Invited speaker and panelist, “Self Reflective Architecture”, Columbia Graduate School of Architecture, New York NY, 12 April 2010

419. Invited Speaker, “3D Printing for biological applications,” in Biofabrication: Biomedical Application of Rapid Prototyping, University of South Carolina, Charleston SC, March 19, 2010

420. Keynote Speaker, “The Robotic Scientist” IEEE Aerospace Conference, Big Sky MT, March 8, 2010

421. Colloquium Speaker, “A factory in your classroom”, University of Virginia School of Education "Tea and Technology" seminar Series, Charlottesville VA, March 4, 2010

422. Invited Plenary Speaker, “The Robotic Scientist”, Simposium Internacional de Sistemas Computacionales y Tecnologías de Información (SISCTI ’10), Monterrey, Mexico, February 26, 2010

423. Invited Speaker, “The robotic Scientist”, The Perimeter Institute, Waterloo ON, Canada, February 3, 2010

424. Invited Plenary Speaker, “Automated Design and Control of experiments”, 16th Lab Automation Conf., Palm Springs CA, January 25, 2010

425. Invited Speaker, “The robotic Scientist”, Foresight Institute, Palo Alto, CA, January 16, 2010
426. Invited keynote speaker, “A factory in your classroom”, National Tech Leadership Summit, Punahou School, Honolulu HI, January 7-8, 2010
427. Colloquium Speaker, “Self-reflective Systems”, Harvard Graduate School of Architecture, Cambridge MA, November 12, 2009
428. Invited Speaker, “Robot Evolution”, Quantum to Cosmos Festival, The Perimeter Institute, Waterloo ON, Canada, October 22, 2009
429. Invited Keynote Speaker, “Reverse Engineering Dynamical Systems”, Fourteenth Portuguese Conference on Artificial Intelligence, EPIA 2009, Aveiro, Portugal, October 12, 2009
430. Invited Keynote Speaker, “From Analog to Digital 3D printing”, Fourth International Conference on Advanced research in Virtual and Rapid Prototyping, VRAP 2009, Leiria, Portugal, October 10, 2009
431. Invited Colloquium, “Self-reflective and self-fabricating robotic systems”, Robotics Institute, Tufts University, Boston MA, September 24, 2009
432. Invited Keynote Speaker, “Self-reflective Systems”, EuropeanConferebce on Artificial Life (ECAL 2009), Budapest, Hungary, September 14, 2009
433. Invited talk, “Self-reflective machines”, Idea City ‘09, Toronto, Canada, June 18, 2009
434. Invited talk, “Bioinspired Robotics”, Emerging Technologies Pavilion, International Robots, Vision & Motion Control exhibition, June 10, Chicago IL, 2009
435. Invited speaker, UPE Cool Math & Computing Seminar, “Mining Experimental Data from Dynamical invariants – From Cognitive Robotics to Computational Biology”, Department of Computer Science, SUNY Binghamton, Binghamton, NY, May 8, 2009
436. Invited Seminar, “3D Printing for Tissue Engineering Applications”, South Carolina bioengineering symposium, Columbia SC, April 14, 2009
437. Invited speaker, The Goldstein Lecture Series, “Self-Reflection and Self-Fabrication in robotic systems”, Technion, Israel Institute of Technology, Haifa, Israel, March 25, 2009
438. Invited Seminar, “Self-Reflection and Self-Fabrication in robotic systems”, Ben Gurion University, Be’er Sheva, Israel, March 24, 2009
439. Invited Seminar, “Robotic self-reflection and self-assembly”, Robotics Institute, Carnegie Mellon University, Pittsburg PA, February 6, 2009
440. Invited Beckman Series Speaker, “Mining experimental data for dynamical invariants, from cognitive robotics to computational biology”, Caltech, Pasadena CA, Nov 20, 2008
441. Invited Colloquium, “Mining experimental data for dynamical invariants, from cognitive robotics to computational biology” Department of Computer Science, Austin TX, Nov 7, 2008

442. Invited Colloquium, “Evolutionary Robotics” Computer Science Dept, Wells College, Aurora NY, October 31, 2008

443. Keynote presentation, “A Factory in Your Kitchen: On multi-material 3D-printing and the future of personal fabrication” International Workshop on Microfactories, Northwestern University, Evanston Illinois, October 6, 2008

444. Invited Colloquium, “Mining freeform naturals laws in dynamical data” Department of Biological Statistics and Computational Biology, Cornell University, October 1, 2008

445. Invited Colloquium, “Mining freeform naturals laws in dynamical data” Department of Biological Statistics and Computational Biology, Cornell University, October 1, 2008

446. Invited SHARP Seminar Speaker, “What do robots dream of? On cognitive machines and other self-modeling systems”, NYU, NY, Sep 24, 2008

447. Invited CS/BME Colloquium Speaker, “Mining experimental data for dynamical invariants – from robotics to biomechanics and computational biology”, USC, Los Angeles CA, Sep 8, 2008

448. Invited talk, Foundation of Nanoscience 2008, "Dynamically reprogrammable self-assembly at macro and micro scales", Snowbird, Utah, April 2008

449. Invited Colloquium, Santa Fe Institute, "Mining experimental data for physical laws", Santa Fe, NM, March 2008

450. Invited talk, “The future of personal fabrication”, University of Pennsylvania Wharton School of management, Philadelphia PA, January 2008

451. Invited talk, NSF Engineering Research and Innovation Annual Meeting, Top advances and Emerging Areas, “Resilient machines”, January 2008, Knoxville TN

452. Invited talk and panel, NSF Engineering Research and Innovation Annual Meeting, “Working with the Media”, January 2008, Knoxville TN

453. Invited presentation, Light in Winter 2008, “What do robots Dream of”, January 2008, Ithaca NY

454. Colloquium Speaker, Chicago University, Physics Dept, “Cognitive Robotics and other self-modeling systems”, December 2007

455. Colloquium Speaker, Delaware University Biomechanics Dept Colloquium, “Biologically inspired robotics”, November 2007

456. Invited Plenary Address, “Emergent Self Models in Machines”, Epigenetic Robotics 2007, November 2007, Rutgers NJ

457. Colloquium Speaker, Cornell University Cognitive Science Colloquium., “Biologically inspired robotics”, October 2007

458. Invited seminar, “Biologically inspired robotics”, Free University of Brussels CS Dept., Brussels, Belgium, Sep 2007

459. Invited seminar, “Emergent Self Models in Machines”, University of Malaga CS Dept., Malaga, Spain, Sep 2007

460. I Invited Speaker, “Multimaterial Freeform Fabrication”, Symposium on Digital Fabrication, MIT, Cambridge MA, May 2007

461. Invited Plenary Address, “Emergent Self Models in Machines”, Annual meeting of The Human Behavior and Evolution Society, May 2007, Williamsburg, Virginia

462. Colloquium Speaker, Carnegie Mellon University, Mechanical Engineering Dept., “Biologically inspired robotics”, February 2007

463. Invited 4-lecture series, “Evolutionary Robotics”, Spring school on cognitive science and artificial intelligence, Günne at Lake Möhne, Germany, March 2007

464. Invited plenary speaker, “Robotics Innovations”, TED / Technology & Design, Monterey, CA, March 2007

465. Invited Speaker, “Machine Minds”, International Symposium on Creating Brain-Like Intelligence, Honda Research Institute Europe, Hohenstein, Germany, February 2007

466. Invited talk, “Reverse engineering biological networks”, Computational & Theoretical Biology Symposium, Rice University, December 2006

467. Colloquium, “Biologically Inspired Robotics”, Computer Science Dept, Harvard University, November 2006

468. Invited speaker, “Biologically Inspired Robotics”, Evolving Life Life Evolving, Namur, Belgium, December 2006

469. Colloquium Speaker, “Biologically Inspired Robotics”, Mechanical & Aerospace Engineering Dept, Vanderbilt University, October 2006

470. Invited Colloquium Speaker, “Emergent Self-models in Machine Minds”, Sage Center, University of California at Santa Barbara, October 2006

471. Invited Keynote Speaker, “Evolutionary Robotics”, Dana-Farber Cancer Institute Annual retreat, Boston, October 2006.

472. Invited Speaker, “Multimaterial Freeform Fabrication”, Symposium on Digital Fabrication, Pretoria, South Africa, June 2006

473. Invited Speaker, “Evolutionary Robotics and Evolutionary Design “, 50th Anniversary Summit of Artificial Intelligence, Monte Verita, Switzerland, July 2006

474. Invited Keynote Speaker, “Biologically Inspired Robotics”, Robocup 2006, Bremen, Germany, June 2006

475. Invited Keynote Speaker, “Co-evolutionary Learning in Embodied Cognitive Agents”, Artificial Life X, Bloomington, Indiana, USA June 2006

476. Invited Keynote Speaker, “Co-evolutionary embedded systems”, The 9th International Conference on Intelligent Autonomous Systems (IAS-9), Tokyo Japan, March 2006

477. Invited Speaker and Panelist, “Automating Discovery”, W.M.Keck Institute Roundtable on future directions in science, Los Angeles CA, May 2006

478. Colloquium Speaker, “Biologically Inspired Robotics: From evolving to Self-Replicating Machines”, College of Engineering, University of Vermont, April 2006

479. Colloquium Speaker, “Automating Discovery”, Department of Pharmacology, University of Texas, Feb 2006

480. Special Seminar Speaker, “Biologically Inspired Robotics: From evolving to Self-Replicating Machines”, Mechanical Engineering Department, Indian Institute of Technology (IIT) Kanpur, January 2006

481. Invited Presenter and Panelist, “Science & Technology Revolutions”, Renaissance Weekend, Charleston SC, Dec 2005

482. Invited Plenary Keynote Speaker, “Print Anything: The future of rapid prototyping”, Annual retreat, Lexmark Inc., Lexington, KY, Nov 2005

483. Invited Colloquium, “Co-evolutionary Methods in System Design and Analysis”, Exxon-Mobile Upstream Research Company, Huston TX, Nov 2005

484. Invited Colloquium, “Evolving Engineering Systems”, Rockefeller University, New York NY, Nov 2005

485. Invited Speaker, “3D Printing Functional Systems”, Symposium on Digital Fabrication, Tromso, Norway, August, 2005

486. Invited Plenary Speaker, “Evolving Engineering Systems”, Int. Conference of Systems Biology, Boston MA, October 2005

487. Invited Plenary Speaker, “Biologically Inspired Robotics”, Robotics festival and exhibition, Venice, Italy, July 2005

488. Invited Speaker, DARPA/ISAT workshop "Beyond Video", Institute for Defense Analyses, Alexandria VA, June 2005

489. Invited speaker, Microsoft Faculty Summit, “3D Tablet Application”, Redmond WA, June 2005

490. Invited Speaker, “Coevolutionary methods in Locomotion”, Locomotion Workshop, Robotics Science and Systems, MIT, June 2005

491. Invited Speaker, “Stochastically reconfiguring systems”, Modular robotics Workshop, Robotics Science and Systems, MIT, June 2005

492. Invited Colloquium Speaker, “Biology and Machines”, Physics Dept, Technion – Israel Institute of Technology, December, 2004

493. Invited Lecturer, “Computational Evolution” (Three lectures series), Winter school in theoretical physics, Hebrew University of Jerusalem, December, 2004

494. Invited colloquium speaker, “Evolved Engineering Systems”, Dept. of Ecology and Evolutionary Biology, Michigan State University, October, 2004

495. Invited Seminar, “Co-evolution for model inference”, Seminar Series in Bioinformatics, Weisman Inst of Science, October, 2004

496. Invited Speaker, DARPA-sponsored workshop on Parallel Assembly, Lansdowne, VA, June 2004

497. Invited speaker, “Innovation in evolutionary processes”, In Search of Innovation – A Complex Adaptive Systems Perspective, Stanta Fe, NM, June, 2004

498. Invited Colloquium Speaker, “Modularity, Regularity and Hierarchy in Evolved Systems”, Dept. of Ecology and Evolutionary Biology, Cornell University, March 29, 2004

499. Invited speaker, Founders workshop, “Innovation in evolutionary processes”, Santa Fe Institute for Complex Systems, StantaFe, NM, USA, Jan 15 2004

500. Invited plenary speaker, Meeting of the National Academies, “Modularity, Regularity and Hierarchy in Evolved Engineering Systems”, Irvine, CA, USA, Nov 15 2003

501. Invited speaker, Microsoft Faculty Summit, “3D Ink”, Redmond WA, June 28, 2003

502. Invited speaker, “Design Automation for Complex Systems”, Advanced Systems Office of the NASA Office of Space Flight, NASA JPL, Jan 14, 2003

503. Invited speaker, Mechanical Engineering Colloquium series, California Institute of Technology, May 7, 2002

504. Invited plenary speaker, NASA Workshop on Revolutionary Aerospace Systems Concepts For Human/Robotic Exploration Of The Solar System, Hampton VA, November 2001

505. Invited speaker, Workshop on Nanophysics and Bio-Electronics, Dresden, Aug 20-24, 2001

506. Invited speaker, “Evolutionary Design”, Boston University, May 2001

507. Invited speaker, “Evolutionary Design”, Cornell University, May 2001

508. Invited speaker, “Evolutionary Design”, University of Illinois at Urbana Champain, Apr 2001

509. Invited speaker, “Evolutionary Design”, University of Washington, Apr 2001

510. Invited speaker, “Evolutionary Design”, Stanford University, Apr 2001

511. Invited speaker, “Evolutionary Design”, UC Berkeley, Berkeley, CA, March 2001
512. Invited speaker, “Evolutionary Design”, MIT, Cambridge, MA, Feb 2001
513. Invited speaker, “Evolutionary Design”, Harvard University, Cambridge, MA, Feb 2001
514. Invited speaker, “Evolutionary Design”, Rice University, Austin, TX, Jan 2001
515. Invited speaker, “Evolutionary Design”, Tufts University, Medford, MA, Jan 2001
516. Invited speaker, “Evolutionary Design”, Northwestern University, Chicago IL, Jan 2001
517. Invited Colloquium, “Evolutionary Design”, Dartmouth College - Hanover, NH, Jan 2001
518. Invited plenary speaker, (“New and Notable”) Annual Biophysical Society meeting, February 20, 2001, Boston, MA, USA
519. Invited Talk, “Evolutionary Robotics”, IEEE Robotics and Automation, Boston Chapter, 2001
520. Invited Speaker, International Firefighting robot competition, Trinity College, Hartford, CT, 2001
521. Plenary speaker, Volen Center for Complex Systems Annual Retreat, February 21, 2001, Woods Hole, MA, USA
522. Colloquium Speaker, “Automated Design and Fabrication of Robotic Lifeforms”, Mechanical Engineering Department, Technion, Israel, Jan 2001
523. Invited talk, “Evolutionary Design”, EXPO’2000 Shaping the future, Hannover, Germany, Aug 1-3, 2000
524. Plenary talk, “Automated Design Concepts, Methods, and Algorithms”, CIRP Design Seminar, Haifa Israel, May 16, 2000
525. Invited talk, “High order Neurons”, Workshop on Hybrid Neural Systems, NIPS 98, Brekenridge, CO, December 4-5, 1998

Professional Activities

Conference Organization

1. **General Chair**, Inside 3D printing Conference and Expo, New York NY, April 11-12, 2016 (5000 participants)
2. **General Chair**, Inside 3D printing Conference and Expo, Santa Clara, Oct 20-21, 2015 (1000 participants)
3. **General Chair**, Inside 3D printing Conference and Expo, New York NY, April 15-17, 2015 (4000 participants)

4. **General Chair**, Inside 3D printing Conference and Expo, Santa Clara CA, Oct 21-23, 2014 (Approx. 1900 participants)
5. **General Chair**, Artificial Life 2014, NYC, July 2014 (Approx. 250 participants)
6. **General Chair**, Inside 3D printing Conference and Expo, NYC, April 22-23. 2014 (Approx. 5000 participants)
7. **General Chair**, Inside 3D printing Conference and Expo, San Jose CA, Sep 17-18, 2013 (Approx. 1500 participants)
8. **General Chair**, Inside 3D printing Conference and Expo, Chicago, July 10-11, 2013 (Approx. 1000 participants)
9. **General Chair**, Inside 3D printing Conference and Expo, NYC, April 22-23. 2013 (Approx. 3000 participants)
10. **Co-organizer**, Workshop on Soft Robotics, Monte Veritas, Switzerland, July 2013 (Approx. 80 participants)
11. **Co-organizer**, Workshop on Modular Robotics, IROS, August 2008
12. **General Chair**, ACM Genetic and Evolutionary Computation Conference (GECCO) 2007, (600 participants) Largest annual conference on evolutionary computation.
13. **Co-organizer**, Workshop on Self Replication, Indiana University, June 2006
14. **Co-organizer**, Workshop on Modular Robotics, U. of Pennsylvania, June 2006
15. **Area Chair**, Robotics Science and Systems '06, U. of Pennsylvania, June 2006 (300 participants)
16. **Track Chair,** Genetic and Evolutionary Computation Conference, Seattle WA, June 2006 (expected 600 participants)
17. **Track Chair,** Genetic and Evolutionary Computation Conference, Washington DC, June 2005 (600 participants)
18. **Co-Chair,** Workshop on Modularity, Regularity and Hierarchy in Evolutionary Computation, June 2004, Seattle, WA (55 Participants).
19. **Co-Chair,** AAAI Symposium on Computational Synthesis, March 242-26, 2003, Stanford CA (60 Participants).
20. **Co-organizer**, ALife VII Workshop on Co-evolution of Bodies and Brains, Aug 3, 2000 Reed College, Portland Oregon

Reviewer, Program and Editorial Committees

1. **Editorial Board, *Science Robotics* (2020-present)**
2. **Editorial Board, *Soft Robotics* (2020-present)**

3. **Editor-in-Chief (2013-2015):** 3D Printing and Additive Manufacturing (3DP), Mary Ann Liebert Publishing
4. **Program Committees**: Artificial Intelligence in Design (AID), Artificial Life (ALIFE), Genetic and Evolutionary Computation (GECCO), Solid Modeling (SM), Frontiers in Evolutionary Algorithms (FEA)
5. **Reviewer**: Nature, Science, PNAS, Computer Aided Design, ASME Journal of Computing and Information Science (AJCIS), ASME Journal of Mechanical Design (AJMD), IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), IEEE Transaction on Evolutionary Computation, Artificial Life, Journal of Computer Integrated Manufacturing, International Journal of Computer Vision (IJCV), Computer Vision and Image Understanding (CVIU), Computer Graphics, Others…

Grants and awards

(First name listed is PI, following (if any) are Co-PIs)

1. Silvia Sellán Lipson H., " Detecting illicit 3D printing through geometric analysis", $80K, 8/2025-8/2026
2. Lipson H., Benjamin D., "Generative AI for architectural planning", $80K, 8/2023-8/2024
3. Lipson H., Benjamin D., "Generative AI for 3D CAD", $80K, 8/2023-8/2024
4. Lipson H., Billinge S, "Deep Generative Crystallography", $160K, DSI/SIRS, 3/2023-2/2024
5. Kutz N, Brunton S, Lipson H., Na L, Manohar K, "NSF Institute for Artificial intelligence on Dynamical Systems", NSF, $20M, 1/2022-12/2027
6. Lipson H., (PI) "Modeling 3D Printed Meat surrogates", Redefine Meat Inc, $115,000, 1/2022-12/2022
7. Lipson H., (PI) "3D Food Printing", Journey Foods, $115,000, 1/2022-12/2022
8. Lipson H., (PI) "Self-Modeling Systems", DARPA, $470K, 4/2021-6/2022
9. Lipson H., (PI) “Multifunctional, Robotically Reconfigurable System for Structural Support”, NASA NSTRF, $144K
10. Lipson H., (PI) " I-Corps: A hand-held device that generates 2D and 3D ultrasound sonograms", NSF I-Corps, $50K, 3/2021-9/2021
11. Lipson H. (PI) “Open Source Ultrasound – Phase II”, Eric Schmidt Foundation, $350K, 6/19-6/21
12. Vondrick C, Lipson H., (co-PI) “Learning Visual Dynamics from Interaction”, NSF, $750K, 10/19-9/22

13. Lipson H. (PI) “Open Source Ultrasound – Phase I”, Eric Schmidt Foundation, $106K, 6/18-6/19
14. Lipson H. (PI) "Soft Actuators for Soft Robotics", IMOD, 2016-2019, $370,000
15. Lipson H., (PI) "Auto-generative Networks", DARPA, 1/2018-12/2019, $816K
16. Chattopadhyay, I (PI) , Lipson H. (co-PI), "ZeD: Zero information modeling", DARPA, 3/2017-2/2021, $400K, Lipson portion $125K
17. Lipson H. (PI), "Simultaneous Optimization and Simulation", DARPA, 1/2017-12/2020, $989K
18. Lipson H., Grinspun E "Food Printing", SEAS SIRS, 2017-2018, $160,000, Lipson Portion $80K
19. Lipson H., "Voxel Advanced Digital-manufacturing for Earth and Regolith in Space ", NASA, 4/2016-7/2016, $18K
20. Lipson H. (2016) "Self-Aware machines", Northrop Grumman Corporation 2016-2017, $85,000
21. Lipson H., Gore M., Nelson R. (2015) " Deep Learning UASs for High-Throughput Agricultural Disease Phenotyping", National Science Foundation, 5/2015-4/2018, $1.2M
22. Lipson H., (2015) "Text To Food: Exploration In 3D Food Printing", University of Chicago, 5/2014-4/2015, $10,000
23. Lipson H., Labutov I. (2014) "Automatic curriculum generation from prerequisite concept networks", Metaknowledge Network, 2014-2015, $108,882
24. Lipson H. (2013) "Simulator 3D printing electrometrical systems", IMOD, 2015-2016, $125,000
25. Lipson H. (2014) "Matter Compilers", DARPA Open Manufacturing, 2014-2015, $100,000
26. James K. Min, Lipson H., R Shepherd (2014) " Fabrication of 3D Printing Models of Patient-Specific Geometric Models of Human Coronary Arteries for Non-invasive Calculation of Coronary Artery Pressure and Flow", Cornell Medical School, 2014-2015, $47,491
27. Lipson H. (2013) "3D printing electrometrical systems", IMOD, 2013-2014, $150,000
28. Lipson H. (2012) "Inverse Gillespie Algorithm", ARO, 2012-2014, $300,000
29. Lipson H. (2012) "Matter Compilers", DARPA Open Manufacturing, 2012-2014, $400,000
30. Lipson H. (2011) "Rapid Assemblers", DARPA M3 2011-2014, $430,000
31. Bull G., French J., Berry R., Lipson H. (2010) "The FabLab classroom: Preparing Students for the Next Industrial Revolution", NSF 2010-2013, $250,000
32. Bull G., Berry R., Lipson H. (2010) "Fab@School – A Digital Fabrication Laboratory for the Classroom", Motorola Foundation Innovation Generation, $250,000, 2010-2011

33. Bull G., Berry R., Lipson H. (2010) "Fab@School – A Digital Fabrication Laboratory for the Classroom", MacArthur Reimagining Learning Competition, $185,000, 2010-2011
34. McLean J., Wkiswo J., Lipson H., (2009) “Elucidation of Leukocyte and Macrophage Biomarker Signature from Drugs of Abuse”, NIH, $2,700,000, 2009-2011
35. Lipson H., Suel G., (2009) “Distilling natural laws from experimental data”, NSF, $600,000, 2009-2012
36. Wikswo J., Lipson H., Jenkins J.W., (2009) “Automated Characterization of the Interaction Dynamics between Toxic Chemicals and Biological Agents”, DTRA, $2,499,762, 2009-2013
37. Moon F.C, Lipson H., Sachse W., Williams C.H. Garcia E.G, Pratt K. (2008), “Vibro-Wind Technology: Alternative Wind Energy Systems for Buildings”, Cornell CCSF, $100,000, 2008-2009.
38. Lipson H., Erickson D., Jaeger H., (2008), “Hierarchical programmable self-assembly”, DARPA MTO, $2,500,000, 2008-2011.
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