



Bio-X Interdisciplinary Initiatives Symposium

Poster Session

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POSTER #	TITLE	AUTHORS
1	Drop Testing Does Not Reproduce 6DOF Head Impact Kinematics	Fidel Hernandez ¹ , Pete Shull ² , David Camarillo ² Departments of Mechanical Engineering ¹ and Bioengineering ² , Stanford University
2	High-Resolution Cancer Imaging with Spectral Domain Optical Coherence Tomography	Orly Liba ^{1,2} , Elliott SoRelle ^{1,3} , Adam de la Zerda ¹ Departments of Structural Biology ¹ , Electrical Engineering ² , and Biophysics ³ , Stanford University
3	The Role of A-catenin in Cadherin-Mediated Mechanical Signaling in Human Embryonic Stem Cell Proliferation and Self-Renewal	Eva Yi-Hsuan Huang ¹ , Yee Seir Kee ¹ , Andrew J. Price ² , Sabine Pokutta ³ , Vittorio Sebastiano ⁴ , William I. Weis ³ , Alexander R. Dunn ^{1,2} Departments of Chemical Engineering ¹ , Structural Biology ³ , and Obstetrics & Gynecology ⁴ and Biophysics Program ² , Stanford University
4	Engineering 3D Biomimetic Hydrogels for Deciphering Brain Tumor Cell Behavior	Christine Wang ¹ , Xinming Tong ² , Fan Yang ^{1,2} Departments of Bioengineering ¹ and Orthopaedic Surgery ² , Stanford University
5	Injectable, Two Component Hydrogels for Cell Delivery After Spinal Cord Injury	Karen Dubbin ¹ , Lei Cai ¹ , Giles Plant ² , Sarah Heilshorn ¹ Departments of Materials Science & Engineering ¹ and Neurosurgery ² , Stanford University
6	Exploratory Study of Atherosclerotic Plaque Using X-Ray Diffraction	Herbert Silva ¹ , Chris Tassone ² , Apurva Mehta ² , Elsie Gyang ³ , Jason Lee ³ , Drew Nelson ¹ Departments of Mechanical Engineering ¹ and Vascular Surgery ³ and SLAC Synchrotron Radiation Lab ² , Stanford University
7	Engineering Patterned Co-Aggregative Mixed-Culture Biofilms	Xiaofan Jin ¹ , David S. Glass ¹ , Ingmar Riedel-Kruse ¹ Department of Bioengineering ¹ , Stanford University
8	Signaling Delays Preclude Defects in Lateral Inhibition Patterning	David S. Glass ¹ , Xiaofan Jin ¹ , Ingmar Riedel-Kruse ¹ Department of Bioengineering ¹ , Stanford, University
9	A Wirelessly Powered, Fully Internal Implant That Enables Optogenetic Stimulation of Brain, Spinal Cord, and Peripheral Nervous System in Untethered Mice	Kate L. Montgomery ^{1*} , Alexander J. Yeh ^{2*} , Logan Grose ^{1,3} , Vivien Tsao ² , Emily A. Ferenczi ^{1,3} , Shrivats Mohan Iyer ¹ , John S. Ho ² , Yuji Tanabe ² , Karl Deisseroth ^{1,3,4,5,6} , Scott L. Delp ^{1,7} , Ada S.Y. Poon ² (*equal contribution) Departments of Bioengineering ¹ , Electrical Engineering ² , Psychiatry & Behavioral Sciences ⁴ , and Mechanical Engineering ⁷ , Neurosciences Program ³ , Howard Hughes Medical Institute ⁵ , and CNC Program ⁶ , Stanford University
10	Physical Modeling of Chromosome Dynamics Reveals Impact of Force and DNA Relaxation	Thomas J. Lampo ¹ , Andrew J. Spakowitz ^{1,2} Department of Chemical Engineering ¹ and Biophysics Program ² , Stanford University
11	Folding and Catalysis of the <i>glmS</i> Ribozyme Riboswitch Studied at the Single-Molecule Level	Andrew Savinov ¹ , Steven Block ^{2,3} Biophysics Program ¹ and Departments of Applied Physics ² and Biology ³ , Stanford University
12	Comparing the Transient Osmotic Swelling of Articular Cartilage and Meniscal Fibrocartilage in Confined Compression	Eva Gabriela Baylon ¹ , Marc Levenston ¹ Department of Mechanical Engineering ¹ , Stanford

		University
13	<i>In Vivo</i> Evaluation of Wearable Head Impact Sensors	Lyndia Wu ¹ , Vaibhav Nangia ² , Kevin Bui ¹ , Bradley Hammor ¹ , Calvin Kuo ² , Fidel Hernandez ² , David Camarillo ^{1,2} Departments of Bioengineering ¹ and Mechanical Engineering ² , Stanford University
14	The Evolutionary Dynamics of the roX Long Noncoding RNAs	Jeffrey J. Quinn ^{1,2,3} , Qiangfeng C. Zhang ^{2,3} , Ibrahim Ilik ⁴ , Plamen Georgiev ⁴ , Asifa Akhtar ⁴ , Howard Y. Chang ^{2,3} Department of Bioengineering ¹ , Howard Hughes Medical Institute ² , and Program in Epithelial Biology ³ , Stanford University; Max Planck Institute of Immunobiology & Epigenetics ⁴
15	Quantitative, High Throughput Thermodynamic and Kinetic Measurements of RNA Tertiary Structure Elements	Sarah K. Denny ¹ , Namita Bisaria ² , Joseph Yesselman ² , Daniel Herschlag ² , William Greenleaf ^{1,3} Biophysics Program ¹ and Departments of Biochemistry ² and Genetics ³ , Stanford University
16	Optical Recording of Activity in <i>Drosophila</i> Early Visual Neurons Allows Direct Visualization of Neuronal Computation	Helen Yang ¹ , Francois St-Pierre ^{2,3} , Xulu Sun ⁴ , Michael Lin ^{2,3} , Thomas Clandinin ¹ Departments of Neurobiology ¹ , Bioengineering ² , Pediatrics ³ , and Biology ⁴ , Stanford University
17	The Minimal Cadherin-Catenin Complex Binds to Actin Filaments Under Force	Craig D. Buckley ¹ , Jiongyi Tan ² , Karen L. Anderson ³ , Dorit Hanein ³ , Niels Volkmann ³ , William I. Weis ^{2,4,5} , W. James Nelson ^{5,6} , Alexander R. Dunn ^{1,2,7} Departments of Chemical Engineering ¹ , Structural Biology ⁴ , Molecular & Cellular Physiology ⁵ , and Biology ⁶ , Biophysics Program ² , and the Stanford Cardiovascular Institute ⁷ , Stanford University; Bioinformatics & Structural Systems Biology Program ³ , Sanford-Burnham Medical Research Institute
18	Haptic fMRI: Mapping Neural Activation During Planning and Reaching for Unconstrained Three Degree-of-Freedom Tasks	Samir Menon ¹ , Michelle Yu ¹ , Hari Ganti ² , Kwabena Boahen ³ , Oussama Khatib ¹ Departments of Computer Science ¹ , Mechanical Engineering ² , and Bioengineering ³ , Stanford University
19	A Cell Type Specific Transcriptional Repressor Directs Selective Upregulation of Terminal Differentiation Program	Jongmin Kim ¹ , Margaret T. Fuller ^{2,3} Departments of Chemical & Systems Biology ¹ , Developmental Biology ² , and Genetics ³ , Stanford University
20	Optogenetic fMRI Reveals Distinct, Frequency-Dependent Networks Recruited by Dorsal and Intermediate Hippocampus Stimulation	Andrew Weitz ^{1,2} , Zhongnan Fang ^{2,3} , Hyun Joo Lee ² , Robert Fisher ² , Wesley Smith ⁴ , ManKin Choy ² , Jia Liu ² , Peter Lin ² , Matthew Rosenberg ^{5,6} , Jin Hyung Lee ^{1,2,3,4,5} Departments of Bioengineering ¹ , Neurology & Neurological Sciences ² , and Electrical Engineering ³ , Stanford University; Departments of Neuroscience ⁴ , Electrical Engineering ⁵ , and Psychology ⁶ , University of California Los Angeles
21	Human-Specific Genome Deletions Correspond with Co-Expression Differences in Primates	Ryan York ¹ , Austin Hilliard ¹ , Russell Fernald ¹ , Hunter Fraser ¹ Department of Biology ¹ , Stanford University
22	Measuring Microtubules Better with a Confocal Microscope and a Computer	Roshni Cooper ¹ , Shaul Yogeve ² , Mark Horowitz ¹ , Kang Shen ² Departments of Electrical Engineering ¹ and Biology ² , Stanford University
23	New Metrics for Manual Dexterity Assessment	Pankaj Sharma ¹ , Clayton Crawford ² , Patricia Youngblood ² , Sakti Srivastava ² Departments of Electrical Engineering ¹ and Surgery ² , Stanford University

24	Probing the Stiffness of the Extracellular Matrix to Control Activation of T Cells in Type 1 Diabetes	Adi de la Zerda ¹ , Tim Thauland ² , Sarah Heilshorn ¹ , Paul Bollyky ³ , Manish Butte ² Departments of Materials Science & Engineering ¹ , Pediatric Allergy & Immunology ² , and Medicine (Division of Infectious Diseases) ³ , Stanford University
25	The Genomics of Neurodevelopment: Transcriptional Networks Underlying the Developing Neocortex	James H. Notwell ¹ , Aaron M. Wenger ¹ , Shoa L. Clarke ² , Tisha Chung ³ , Geetu Tuteja ³ , Harendra Guturu ⁴ , Whitney Heavner ^{3,5} , Bruce T. Schaar ³ , Gill Bejerano ^{1,3} Departments of Computer Science ¹ , Genetics ² , Developmental Biology ³ , Electrical Engineering ⁴ , and Biology ⁵ , Stanford University
26	Novel Insights Into Influenza A Virus Genome Assembly and Implications for Future Antiviral Strategies	Rachel Hagey ¹ , Siqi Tian ³ , Edward Pham ¹ , Ann Kladwang ³ , Menashe Elazar ² , Rhiju Das ^{3,4} , Jeffrey Glenn ^{1,2,5} Departments of Microbiology & Immunology ¹ , Medicine (Division of Gastroenterology & Hepatology) ² , Biochemistry ³ , and Physics ⁴ , Stanford University; Veterans Administration Medical Center ⁵ , Palo Alto
27	Cystine-Knot Miniproteins as Novel Therapeutic Tools for Targeting the Brain	Shelley E. Ackerman ¹ , Christy M. Wilson ² , Suzana A. Kahn ² , James R. Kintzing ¹ , Darren A. Jindal ¹ , Samuel H. Cheshier ² , Gerald A. Grant ² , Jennifer R. Cochran ^{1,3} Departments of Bioengineering ¹ , Neurosurgery ² , and Chemical Engineering ³ , Stanford University
28	Tracking Single Molecules of Smoothed in Cilia	Lucien E. Weiss ¹ , Ljiljana Milenkovic ² , Josh Y. Yoon ¹ , Matthew Scott ² , W. E. Moerner ¹ Departments of Chemistry ¹ and Biology ² , Stanford University
29	Staggered Sweeps: The Obstruction of Adaptation by Recessive, Strongly Deleterious Alleles	Zoe Assaf ¹ , Dmitri Petrov ² , Jamie Blundell ³ Departments of Genetics ¹ , Biology ² , and Applied Physics ³ , Stanford University
30	Curvature-Dependent Localization of the Bacterial Cytoskeleton Drives <i>De Novo</i> Morphogenesis in <i>Escherichia coli</i>	Gabriel Billings ¹ , Nikolay Ouzonov ⁵ , Tristan Ursell ² , Samantha Desmarais ² , Joshua Shaevitz ^{4,6} , Zemer Gitai ⁵ , Kerwyn Casey Huang ^{2,3} Departments of Physics ¹ , Bioengineering ² , and Microbiology & Immunology ³ , Stanford University; Departments of Physics ⁴ and Molecular Biology ⁵ and Lewis-Sigler Institute for Integrative Genomics ⁶ , Princeton University
31	Basic Level Category Structure Emerges Gradually Across Human Ventral Visual Cortex	Marius Cătălin Jordan ¹ , Michelle R. Greene ¹ , Diane M. Beck ^{2,3} , Li Fei-Fei ¹ Department of Computer Science ¹ , Stanford University; Beckman Institute ² and Department of Psychology ³ , University of Illinois at Urbana-Champaign
32	Estimating Image Depth Using a Large Shape Collection	Hao Su ¹ , Qixing Huang ¹ , Niloy Mitra ² , Yangyan Li ¹ , Leonidas Guibas ¹ Department of Computer Science ¹ , Stanford University; Department of Computer Science ² , University College London
33	Mechanical Biomarkers Predict Human Embryo Viability	Livia Zarnescu ¹ , Jinnuo Han ² , Barry Behr ³ , Renee Reijo Pera ⁴ , David Camarillo ¹ Departments of Bioengineering ¹ and Obstetrics & Gynecology ³ and Stem Cell Research Institute ² , Stanford University; Montana State University ⁴
34	Stackable Electronics Architecture for a Breast Dedicated PET System	Paul D. Reynolds ^{1,2} , Arne Vandenbroucke ² , David Freese ^{1,2} , David Hsu ^{1,2} , Derek Innes ² , and Craig S. Levin ^{1,2,3} Departments of Electrical Engineering ¹ , Radiology ² , and Physics ³ , Stanford University

35	Predicting Papillary Thyroid Carcinoma Patient Outcomes through Gene Expression Data	Kun-Hsing Yu ^{1,2} , Wei Wang ³ , Chung-Yu Wang ⁴ , Michael Snyder ² Biomedical Informatics Program ¹ and Departments of Genetics ² , Health Research & Policy ³ , and Computer Science ⁴ , Stanford University
36	Conserved Regulation of the Switch From Mitosis to Meiosis by Bgcn in the Mammalian Germline	Alexis Bailey ¹ , Rebecca Gold ¹ , Dirk de Rooij ² , Margaret Fuller ¹ Department of Developmental Biology ¹ , Stanford University; Center for Reproductive Medicine (Academic Medical Center) ² , University of Amsterdam
37	RF-Penetrable PET Insert for Simultaneous PET/MRI	Brian J. Lee ¹ , Alexander M. Grant ¹ , Chen-Ming Chang ¹ , Craig S. Levin ¹ Department of Radiology ¹ , Stanford University
38	Genetic Mapping Uncovers Cis-Regulatory Landscape of RNA Editing	Gokul Ramaswami ¹ , Rui Zhang ¹ , Trudy Mackay ² , Rhiju Das ³ , Jin Billy Li ¹ Departments of Genetics ¹ and Biochemistry ³ , Stanford University; Department of Genetics ² , North Carolina State University
39	Exploring the Use of Microbial Source Tracking Assays in Dhaka, Bangladesh for the Identification of Sources of Fecal Contamination in Household Environments	Angela R. Harris ¹ , Amy J. Pickering ^{1,2} , Michael Harris ³ , Solaiman Doza ⁴ , Sirajul Islam ⁴ , Leanne Unicomb ⁴ , Stephen Luby ^{2,5} , Jennifer Davis ^{1,2} , Alexandria Boehm ¹ Department of Civil & Environmental Engineering ¹ and Medicine (Division of Infectious Diseases) ⁵ , Woods Institute for the Environment ² , and Emmet Interdisciplinary Program in Environment & Resources ³ , Stanford University; International Centre for Diarrhoeal Disease Research ⁴ , Bangladesh
40	Physics of High Dimensional Statistics	Madhu Advani ¹ , Surya Ganguli ¹ Department of Applied Physics ¹ , Stanford University
41	Synchronous Universal Droplet Logic and Control	Georgios Katsikis ¹ , Jim Cybulski ¹ , Manu Prakash ² Departments of Mechanical Engineering ¹ and Bioengineering ² , Stanford University
42	A Skin-Inspired Organic Digital Mechanoreceptor	Alex Chortos ¹ , Benjamin C.-K. Tee ² , Andre Berndt ³ , Ariane Tom ³ , Allister McGuire ⁴ , Amanda Kim Nguyen ² , Ziliang Carter Lin ⁴ , Kevin Tien ⁵ , Huiliang Wang ³ , Bianxiao Cui ⁴ , Karl Deisseroth ³ , Tse Nga Ng ⁶ , Zhenan Bao ⁷ Departments of Materials Science & Engineering ¹ , Electrical Engineering ² , Bioengineering ³ , Chemistry ⁴ , and Chemical Engineering ⁷ , Stanford University; Department of Electrical Engineering ⁵ , Columbia University; Xerox Palo Alto Research Center ⁶
43	Punch Card Programmable Microfluidics	George Korir ¹ , Elizabeth Marshman ² , Ben Alpers ² , Manu Prakash ¹ Departments of Bioengineering ¹ and Mechanical Engineering ² , Stanford University
44	Reduced Working Memory Predicts Impaired Long-Term Memory in Chronic Media Multitaskers	Monica Thieu ¹ , Melina Uncapher ¹ , Anthony Wagner ^{1,2} Department of Psychology ¹ and Neurosciences Program ² , Stanford University
45	G6PD-p53 Inhibition Using a Rational Peptide	Tatum Banayat ¹ , Nir Qvit ² , Sunhee Hwang ² , Daria Mochly-Rosen ² Departments of Bioengineering ¹ and Chemical & Systems Biology ² , Stanford University
46	Lossy Compression of Quality Scores May Improve SNP Calling	Idoia Ochoa ¹ , Mikel Hernaez ¹ , Tsachy Weissman ¹ Department of Electrical Engineering ¹ , Stanford

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47	Chaos Analysis of Brain Transitions at Loss and Recovery of Consciousness	M. Bruce MacIver ¹ , Divya Chander ¹ , Brian H. Bland ² Department of Anesthesia ¹ , Stanford University; Department of Psychology ² , University of Calgary
48	Improving Inhibitory Neuron Function in Brain Slices	Beza A. Dagne ¹ , Melis K. Sunay ¹ , James Nie ¹ , M. Bruce MacIver ¹ Department of Anesthesia ¹ , Stanford University
49	Acoustic Detection of Stem Cell-Derived Cardiomyocytes	Catherine Jan ¹ , Sally Kim ² , Michel Dignonnet ³ , Nicholas Melosh ⁴ , Olav Solgaard ¹ Departments of Electrical Engineering ¹ , Psychiatry ² , Applied Physics ³ , and Materials Science & Engineering ⁴ , Stanford University
50	<i>In Vivo</i> Measurement of Intra-Voxel Crossing Fibers in the Cerebral Cortex Using Diffusion MRI	Qiyuan Tian ¹ , Christoph W.U. Leuze ² , Ariel Rokem ³ , Jennifer A. McNab ² Departments of Electrical Engineering ¹ , Radiology ² , and Psychology ³ , Stanford University
51	Predicting Diffusion Magnetic Resonance Signal from Orientation Distribution Function for Model Accuracy Evaluation	Qiyuan Tian ¹ , Jennifer A. McNab ² , Ariel Rokem ³ Departments of Electrical Engineering ¹ , Radiology ² , and Psychology ³ , Stanford University
52	Novel Immuno-Modulatory Function of Ganciclovir Is Associated with the Activation of Interferon Signaling	Vidhu Mathur ^{1,2} , Danny Do ¹ , Ritwik Burai ³ , Hilal Lashuel ³ , Tony Wyss-Coray ^{1,2} Department of Neurology & Neurological Sciences ¹ , Stanford University; Center for Tissue Regeneration, Repair & Restoration ² , VA Palo Alto Health Care System; Laboratory of Molecular & Chemical Biology of Neurodegeneration, Brain Mind Institute ³ , EPFL, Lausanne, Switzerland.
53	smallWig: Parallel Compression of RNA-Seq WIG Files	Zhiying Wang ¹ , Tsachy Weissman ¹ , Olgica Milenkovic ² Department of Electrical Engineering ¹ , Stanford University; Department of Electrical and Computer Engineering ² , University of Illinois at Urbana-Champaign
54	Microglial Complement Receptor 3 is a Modulator of Abeta Degradation	Eva Czirr ¹ , Nicholas A. Castello ² , Kira I. Mosher ¹ , Joseph M. Castellano ¹ , Kurt M. Lucin ¹ , Katerina Akassoglou ^{2,3} , Markus Britschgi ¹ , John R. Cirrito ⁴ , Tony Wyss-Coray ^{1,5} Department of Neurology & Neurological Sciences ¹ , Stanford University; Gladstone Institute of Neurological Disease ² , San Francisco; Department of Neurology ³ , University of California, San Francisco; Department of Neurology ⁴ , Washington University; Center for Tissue Regeneration, Repair, & Restoration ⁵ , VA Palo Alto Health Care System
55	The Coding of Cutaneous Temperature in the Spinal Cord	Chen Ran ¹ , Mark A. Hoon ² , Xiaoke Chen ¹ Department of Biology ¹ , Stanford University; Molecular Genetics Unit, Laboratory of Sensory Biology ² , National Institute of Dental & Craniofacial Research – National Institutes of Health
56	Force Measurements of Hovering Hummingbirds	Rivers Ingersoll ¹ , David Lentink ¹ Department of Mechanical Engineering ¹ , Stanford University
57	Precisely Patterned Model 3-D Bone Tissue Constructs	T. Tolga Demirtas ¹ , Sinan Guven ¹ , Oju Jeon ² , Eben Alsberg ² , Utkan Demirci ¹ Bio-Acoustic MEMS in Medicine (BAMM) Laboratory, Department of Radiology, Canary Center for Cancer Early Detection ¹ , Stanford University; Alsberg Stem Cell & Engineered

58	Therapeutic Allele-Specific siRNA Delivery into Dilated Cardiomyopathy Human Engineered Heart Muscle	<p>Novel Therapeutics (ASCENT) Laboratory, Biomedical Engineering and Orthopaedic Surgery², Case Western Reserve University. Elena Matsa^{1,2,3,4}, Wenchao Sun⁵, John H. Ahrens¹, Andrey V. Malkovskiy⁵, Vittavat Termglinchan^{1,2,3,4}, Ioannis Karakikes^{1,2,3,4}, Johannes Riegler^{1,2,3,4}, Jayakumar Rajadas⁵, Joseph C. Wu^{1,2,3,4}</p> <p>Stanford Cardiovascular Institute¹, Departments of Medicine² and Radiology³, Institute of Stem Cell Biology & Regenerative Medicine⁴, and Biomaterials & Advanced Drug Delivery (BioADD) Laboratory of Pharmacology Division⁵, Stanford University</p>
59	Young Plasma Ameliorates Synaptic and Cognitive Deficits in Mouse Model for Alzheimer's Disease	<p>Jinte Middeldorp¹, Benoit Lehallier¹, Saul A. Villeda², Suzanne Miedema¹, Emily Evans¹, Eva Czirr¹, Hui Zhang¹, Jian Luo¹, Trisha Stan¹, Kira I. Mosher¹, Eliezer Masliah³, Tony Wyss-Coray^{1,4}</p> <p>Department of Neurology & Neurological Sciences¹, Stanford University; Department of Anatomy², University of California, San Francisco; Department of Neurosciences³, University of California, San Diego; Center for Tissue Regeneration, Repair & Restoration⁴, VA Palo Alto Health Care System</p>
60	Optimizing Visual Flight Control: Maneuvering Lovebirds Coordinate Their Super-Fast Gaze Changes with Their Wingbeat	<p>Daniel Kress¹, Evelien van Bokhorst¹, David Lentink¹</p> <p>Department of Mechanical Engineering¹, Stanford University</p>
61	Assessment of Brain Delivery and Metabolism of [¹⁸ F]FDG in an Experimental Parabiosis Model, Following Single Partner Administration	<p>Mikael Palner^{1,2}, Bin Shen^{1,2}, Joseph M. Castellano³, Jian Luo³, Tony Wyss-Coray^{3,4}, Frederick T. Chin^{1,2}</p> <p>Departments of Radiology¹ and Neurological Sciences³ and Molecular Imaging Program at Stanford (MIPS)², Stanford University; Center for Tissue Regeneration, Repair & Restoration⁴, VA Palo Alto Health Care System</p>
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64	Spatial Transcriptome Profiling with Lanthanide-Based Probes	<p>Daniel P. Riordan¹, Ukrae Cho², James K. Chen², Mark A. Krasnow¹, Tushar Desai³, Pehr A.B. Harbury¹</p> <p>Departments of Biochemistry¹, Chemical & Systems Biology², and Medicine³, Stanford University</p>
65	Understanding the Kinetic Restriction of Adipogenesis	<p>Karen Tkach¹, Mia Hutchinson¹, Esha Atolia¹, Mary Teruel¹</p> <p>Department of Chemical & Systems Biology¹, Stanford University</p>

66	Geometric Analysis and Variability Mapping in Human White Matter Brain Structures	Tanya Gluzman ¹ , Franco Pestilli ² , Leonidas Guibas ³ Departments of Electrical Engineering ¹ and Computer Science ³ , Stanford University; Department of Psychological & Brain Sciences, Indiana University ²
67	pH Sensitive Polypyrrole Nanoparticles for Drug Delivery	Devleena Samanta ¹ , Jana Meiser ¹ , Richard Zare ¹ Department of Chemistry ¹ , Stanford University
68	Imaging Electrical Activity in Neurons and Cardiomyocytes with ASAP-Family Voltage Sensors	Michael Pan ¹ , Francois St-Pierre ¹ , Michael Z. Lin ¹ Departments of Pediatrics and Bioengineering ¹ , Stanford University
69	Identifying Novel Biomarkers of Naturally Occurring Social Impairments in Male Rhesus Monkeys	Ozge Oztan ¹ , Joseph P. Garner ^{1,2} , Katie Chun ³ , Shellie A. Hyde ¹ , Elliott H. Sherr ⁴ , John P. Capitanio ³ , Karen J. Parker ¹ Departments of Psychiatry & Behavioral Sciences ¹ and Comparative Medicine ² , Stanford University; California National Primate Research Center ³ , University of California, Davis; Department of Neurology ⁴ , University of California, San Francisco
70	The Effect of Continuous and Local IL-4 Delivery on Systemic Macrophage Trafficking and Polyethylene Particle Induced Bone Loss	Jukka Pajarinen ¹ , Taishi Sato ¹ , Tzu-hua Lin ¹ , Florence Loi ¹ , Ruth Zhang ¹ , Changchun Fan ¹ , Zhenyu Yao ¹ , Stuart B. Goodman ^{1,2} Departments of Orthopaedic Surgery ¹ and Bioengineering ² , Stanford University
71	Mechanisms of Alternative Polyadenylation in Muscle Stem Cells	Antoine de Morrée ¹ , Qiang Gan ¹ , Biter Bilen ¹ , Thomas A. Rando ¹ Department of Neurology & Neurological Sciences ¹ , Stanford University
72	Partial TrkB Receptor Activation Enhances Interneuronal Function and Suppresses Epileptogenesis Following Traumatic Brain Injury	Feng Gu ¹ , Isabel Parada ¹ , Yunyong Ma ¹ , Tao Yang ¹ , Frank Longo ¹ , David Prince ¹ Department of Neurology & Neurological Sciences ¹ , Stanford University
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74	Quantifying the Influence of Tumor Protein's Biophysical and Cellular Characteristics on Their Observability in Blood	Ravali Adusumilli ¹ , Justin Carden ¹ , Michelle Hori ¹ , Qiaojun Fang ² , Parag Mallick ¹ Canary Center at Stanford for Cancer Early Detection and Department of Radiology ¹ , Stanford University; National Center for Nanoscience & Technology ² , China
75	Modeling the Relationship Among Protein Concentration, Interaction Rates, and Network State	Justin Carden ¹ , Stephanie Van de Ven ¹ , Michelle Hori ¹ , Raghu Machiraju ² , Gheorghe Cracium ³ , Casian Pantea ⁴ , Parag Mallick ¹ Department of Radiology ¹ , Stanford University; Departments of Computer Science and Engineering ² , Ohio State University; Departments of Mathematics and Biomolecular Chemistry ³ , University of Wisconsin-Madison; Department of Mathematics ⁴ , West Virginia University
76	An Ebola-Centered Knowledge Base	Maulik R. Kamdar ¹ , Michel Dumontier ¹ Stanford Center for Biomedical Informatics Research and Department of Medicine ¹ , Stanford University
77	Droplet Fusion Mass Spectrometry for Fast Protein Kinetics	Jae Kyoo Lee ^{1,2} , Hong Gil Nam ^{2,3} , Richard N. Zare ¹ Department of Chemistry ¹ , Stanford University; Center for Plant Aging Research, Institute for Basic Science (IBS) ² and Department of New Biology ³ , Daegu Gyeongbuk Institute of Science

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78	REIs: Renewable Energy Infrastructures	Chris Ford ¹ , Larry Leifer ¹ Department of Mechanical Engineering and Center for Design Research ¹ , Stanford University
79	Uncovering the Regulatory Network Governing the Proliferation-Differentiation Switch During Adipogenesis	Michael Zhao ¹ , Mingyu Chung ¹ , Mary Teruel ¹ Department of Chemical & Systems Biology ¹ , Stanford University
80	Developmental Expression of Opioid Receptors in Sensory Neural Circuits	Sarah Low ¹ , Chaudy Sotoudeh ¹ , Andrew Shuster ¹ , Gregory Scherrer ¹ Departments of Anesthesiology, Perioperative & Pain Medicine, Neurosurgery, and Molecular & Cellular Physiology ¹ , Stanford University
81	Low-Cost Fabrication of Aspheric Microlenses	Laurel Kroo ¹ , George Herring ² , Manu Prakash ³ Departments of Mechanical Engineering ¹ , Electrical Engineering ² , and Bioengineering ³ , Stanford University
82	Ultra-Fast Epithelium Contractions in the World's Simplest Animal	Shahaf Armon ¹ , William Gillpin ^{2*} , Andres Aranda-Diaz ^{1*} , Arjun Bhargava ¹ , Manu Prakash ¹ (*equal contribution) Departments of Bioengineering ¹ and Applied Physics ² , Stanford University
83	Third Party iNKT Cells Protect From GVHD Through Donor CD4+CD25+FoxP3+ Tregs	Dominik Schneidawind ¹ , Jeanette Baker ¹ , Antonio Pierini ¹ , Corina Buechele ² , Richard H. Luong ³ , Everett H. Meyer ¹ , Robert S. Negrin ¹ Departments of Medicine ¹ , Pathology ² , and Comparative Medicine ³ , Stanford University
84	Genome Engineering to Prospectively Investigate the Pathogenesis of MLL-Rearranged Acute Leukemias	Corina Buechele ¹ , Chiou-Hong Lin ¹ , Jesus Duque-Afonso ¹ , Erin H. Breese ² , Matthew Porteus ² , Dominik Schneidawind ³ , Robert S. Negrin ³ , Michael L. Cleary ¹ Departments of Pathology ¹ and Medicine (Divisions of Pediatric Hematology, Oncology, Stem Cell Transplantation & Cancer Biology ² , and Blood & Marrow Transplantation ³), Stanford University
85	Surgical Decompression of Lumbar Spinal Stenosis Normalizes Impairment in Objective Measures of Physical Activity: A Case-Control Study	Christy Tomkins-Lane ¹ , Matthew P. Buman ² , Agnes Martinez-Ith ¹ , William L. Haskell ³ , Ming-Chih Kao ⁴ , Matthew Smuck ¹ Departments of Orthopaedics ¹ , Medicine ³ , and Anesthesiology ⁴ , Stanford University; Department of Exercise & Wellness ² , Arizona State University
86	Pathways Analysis of Rare Maternal Variants in Autism	Chloe O'Connell ¹ , Sasha Sharma ^{2,3} , Jae-Yoon Jung ^{2,3} , Dennis P. Wall ^{2,3} Stanford Medical School ¹ , Department of Medicine (Division of Systems Medicine ²), Hartwell Autism Informatics Initiative (iHART) ³ , Stanford University
87	Longitudinal Thalamus Neuroanatomy in Adolescents with Bipolar I Disorder	Melissa Wei ¹ , Mira Raman ¹ , Manpreet K. Singh ¹ Department of Psychiatry & Behavioral Sciences ¹ , Stanford University
88	Everything Else Is Not Equal; Joint Analysis of Human Polymorphism and Mammalian Divergence Reveals Epistatic Interactions and Selection on Synonymous Sites in Humans	Arbel Harpak ¹ , Anand Bhaskar ² , Jonathan Pritchard ^{1,2} Departments of Biology ¹ and Genetics ² , Stanford University
89	Free-Breathing Pediatric MRI with Nonrigid Motion Correction and Acceleration	Joseph Y. Cheng ¹ , Tao Zhang ¹ , Nichanan Ruangwattanapaisarn ³ , Marcus T. Alley ² , Martin Uecker ⁴ , John M. Pauly ¹ , Michael Lustig ⁴ , Shreyas S. Vasanaawala ² Departments of Electrical Engineering ¹ and Radiology ² , Stanford University; Ramathibodi Hospital, Mahidol University ³ , Bangkok, Thailand; Department of Electrical Engineering &

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90	Comprehensive Soft-Gated Highly Accelerated 4D Flow MRI for Congenital Heart Disease	Joseph Y. Cheng ¹ , Tao Zhang ¹ , Kate Hanneman ² , Marcus T. Alley ² , Peng Lai ³ , Jonathan I. Tamir ⁴ , Martin Uecker ⁴ , John M. Pauly ¹ , Michael Lustig ⁴ , Shreyas S. Vasanaawala ² Departments of Electrical Engineering ¹ and Radiology ² , Stanford University; Global Applied Science Laboratory ³ , GE Healthcare, Menlo Park; Department of Electrical Engineering & Computer Sciences ⁴ , University of California, Berkeley
91	3D Free-Breathing Abdominal MRI Using Robust Navigator Processing with Coil Clustering	Tao Zhang ¹ , Joseph Cheng ¹ , Yuxin Chen ² , John Pauly ² , Shreyas Vasanaawala ¹ Departments of Radiology ¹ and Electrical Engineering ² , Stanford University
92	Fast and Continuous Epithelial Morphogenesis in a Basal Metazoan	Vivek N. Prakash ¹ , Arjun Bhargava ¹ , Manu Prakash ¹ Department of Bioengineering ¹ , Stanford University
93	Precise Non-Homologous End-Joining Repairs the Majority of CRISPR/Cas9 Breaks	Jonathan Geisinger ¹ , Sophia Hernandez ¹ , Soren Turan ¹ , Michael Wilkinson ¹ , Laura Spector ¹ , Michele Calos ¹ Department of Genetics ¹ , Stanford University
94	A Novel "Trigger-and-Release" Strategy for Hypoxia PET Imaging	Samuel D. Banister ¹ , Bin Shen ¹ , Corinne Beinat ¹ , Jessica L. Klockow ¹ , Marta Vilalta ² , Marjan Rafat ² , Sophia B. Chernikova ² , Jason Stafford ² , Ananth Srinivasan ¹ , Edward E. Graves ² , J. Martin Brown ² , Frederick T. Chin ¹ Departments of Radiology ¹ and Radiation Oncology ² , Stanford University
95	Application of a High Performance Intracortical Brain Computer Interface for Communication in a Person with ALS	Chethan Pandarinath ^{1,2,3,*} , Paul Nuyujukian ^{4,5,1,3,*} , Vikash Gilja ^{1,8} , Christine Blabe ^{1,3} , Janos Perge ^{9,10,12} , Beata Jarosiewicz ^{10,11,12} , Leigh Hochberg ^{9,10,12,13,14} , Krishna Shenoy ^{2,3,4,6,7,**} , Jaimie Henderson ^{1,3,**} (*equal contribution)(**equal contribution) Departments of Neurosurgery ¹ , Electrical Engineering ² , Bioengineering ⁴ , and Neurobiology ⁷ , Stanford Neurosciences Institute ³ , Stanford School of Medicine ⁵ , and Stanford Neurosciences Program ⁶ , Stanford University; Department of Electrical & Computer Engineering ⁸ , University of California, San Diego; School of Engineering ⁹ , Institute for Brain Science ¹⁰ , and Department of Neuroscience ¹¹ , Brown University; Center for Neurorestoration & Neurotechnology, Rehabilitation R&D Service ¹² , Department of VA Medical Center, Providence, RI; Department of Neurology ¹³ , Massachusetts General Hospital, Boston, MA; Department of Neurology ¹⁴ , Harvard Medical School
96	Regularized P-value Weighting: Multiple Testing with Prior Information	Edgar Dobriban ¹ , Kristen Fortney ^{2,3} , Stuart K. Kim ^{2,3} , Art B. Owen ¹ Departments of Statistics ¹ and Developmental Biology ² and Genetics ³ , Stanford University
97	Gene Set P-Value Estimation with Multiple Importance Sampling	Hera He ¹ , Art B. Owen ¹ Department of Statistics ¹ , Stanford University
98	Choosing the Number of Factors to Recover the Factor-Loading Matrix and Application in Removing Unwanted Variation	Jingshu Wang ¹ , Art B. Owen ¹ Department of Statistics ¹ , Stanford University
99	Serotonin Transporter and Maternal Care: A Sex-Specific GxE Effect on Juvenile Social Play in Free-Ranging Rhesus Macaques of Cayo Santiago	Jesus E. Madrid ¹ , Tara M. Mandalaywala ² , Sean P. Coyne ² , Joseph P. Gargner ³ , Christina S. Barr ⁴ , Dario Maestripietri ² , Karen J. Parker ¹ Departments of Psychiatry & Behavioral

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100	Grid Error Correction by Environmental Boundaries	Kiah Hardcastle ¹ , Surya Ganguli ² , Lisa Giocomo ¹ Departments of Neurobiology ¹ and Applied Physics ² , Stanford University
101	Single Cell Proteomics to Understand Protein Expression Variability and Correlation During the Cell Cycle	Kyle M. Kovary ¹ , Michael Zhao ¹ , Mary N. Teruel ¹ Department of Chemical & Systems Biology ¹ , Stanford University
102	Radioluminescence Microscopy	Tae Jin Kim ¹ , Silvan Tuerkcan ¹ , Guillem Pratx ¹ Department of Radiation Oncology (Medical Physics) ¹ , Stanford University
103	Vapor Mediated Sensing and Motility in Two-Component Droplets	Nate Cira ¹ , Adrien Benusiglio ¹ , Manu Prakash ¹ Department of Bioengineering ¹ , Stanford University
104	Macrophages Co-Cultured with MC3T3 Cells Enhanced Osteogenic Differentiation	Florence Loi ¹ , Ruth Zhang ¹ , Katherine Barcay ¹ , Heather Rogan ² , Tzu-hua Lin ¹ , Jukka Pajarinen ¹ , Changchun Fan ¹ , Taishi Sato ¹ , Jordan Raphel ³ , Stuart Goodman ^{1,2} , Zhenyu Yao ¹ Departments of Orthopaedic Surgery ¹ , Bioengineering ² , and Materials Science & Engineering ³ , Stanford University