

Kavli Salon: NeuroData Without Borders 1

Scientist Profiles



György Buzsáki

Biggs Professor of Neural Sciences
NYU School of Medicine

György Buzsáki was born in Hungary and he graduated (M.D.) from the University of Pecs in 1974. He received his Ph.D. in Neuroscience from the Academy of Sciences, Budapest in 1984. Currently he is a Board of Governors Professor of Neuroscience at Rutgers University, Newark, New Jersey. His primary research interest is how neuronal circuits code, transfer and store information, especially how different brain oscillations serve such mechanisms. His two-stage (wake-sleep) model of memory has been supported by research in numerous laboratories world-wide. Dr. Buzsáki is an elected Fellow of the American Association for the Advancement of Science and a member of the Hungarian Academy of Sciences, and he sits on the editorial boards of several leading neuroscience journals, including *Science* and *Neuron*.



George Church

Professor of Genetics
Harvard Medical School

George Church is Professor of Genetics at Harvard Medical School, Director of PersonalGenomes.org, providing the world's only open-access information on human Genomic, Environmental & Trait data (GET). His 1984 Harvard PhD included the first methods for direct genome sequencing, molecular multiplexing & barcoding. These led to the first commercial genome sequence (pathogen, *Helicobacter pylori*) in 1994. His innovations in essentially all of the "next generation" genome sequencing (CGI, Life, Illumina, nanopore) methods and companies and oligo synthesis plus cell/tissue engineering resulted in founding additional application-based companies spanning fields of medical diagnostics (Knome, Alacris, AbVitro, Pathogenica) & synthetic biology/therapeutics (LS9, Joule, Gen9, Editas, Egenesis, WarpDrive) as well as new privacy, biosafety and biosecurity policies. He is director of the NIH Center for Excellence in Genomic Science. His honors include election to NAS and NAE & Franklin Bower Laureate for Achievement in Science. He has coauthored 330 papers, 60 patents & one book (Regenesis).

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**Sean Hill**

Co-Director, Blue Brain Project

Co-Director of Neuroinformatics, Human Brain Project

Sean Hill is co-Director of the Blue Brain Project and co-Director of Neuroinformatics in the European Union funded Human Brain Project (HBP) at the École Polytechnique Fédérale de Lausanne (EPFL). Hill also serves as the Scientific Director of the International Neuroinformatics Coordinating Facility (INCF) at the Karolinska Institutet in Stockholm, Sweden. Hill has extensive experience in building and simulating large-scale models of brain circuitry and currently supervises and leads research efforts exploring the principles underlying the structure and dynamics of neocortical and thalamocortical microcircuitry. He also serves in management and advisory roles on several large-scale clinical informatics initiatives around the world. After completing his Ph.D. in computational neuroscience at the Université de Lausanne, Switzerland, Hill held postdoctoral positions at The Neurosciences Institute in La Jolla, California and the University of Wisconsin, Madison, then joined the IBM T.J. Watson Research Center where he served as the Project Manager for Computational Neuroscience in the Blue Brain Project until his appointment at the EPFL.

**Christof Koch**

Chief Scientific Officer

Allen Institute for Brain Science

Christof Koch joined the Allen Institute as Chief Scientific Officer in 2011. For the past 25 years, Koch has served on the faculty at the California Institute of Technology (Caltech), from his initial appointment as Assistant Professor, Division of Biology and Division of Engineering and Applied Sciences in 1986, to his most recent position as Lois and Victor Troendle Professor of Cognitive & Behavioral Biology. Previously, he spent four years as a postdoctoral fellow in the Artificial Intelligence Laboratory and the Brain and Cognitive Sciences Department at the Massachusetts Institute of Technology. He received his baccalaureate from the Lycée Descartes in Rabat, Morocco, his M.S. in physics from the University of Tübingen in Germany and his Ph.D. from the Max-Planck-Institut für Biologische Kybernetik, Tübingen.

Koch has published extensively, and his writings and interests integrate theoretical, computational and experimental neuroscience. Stemming in part from a long-standing collaboration with the late Nobel Laureate Francis Crick, Koch authored the book “The Quest for Consciousness: A Neurobiological Approach.” He has also authored the technical books “Biophysics of Computation: Information Processing in Single Neurons” and “Methods in Neuronal Modeling: From Ions to Networks,” and served as editor for several books on neural modeling and information processing. Koch’s research addresses scientific questions using a widely multidisciplinary approach.

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Maryann Martone

Co-director , National Center for Microscopy and Imaging Research (NCMIR)
Professor-in-Residence, Neuroscience
University of California, San Diego

Maryann Martone received her B.A. from Wellesley College in biological psychology and Ancient Greek, and her Ph.D. in neuroscience in 1990 from the University of California, San Diego. Her thesis work on the neurochemical organization of the mammalian neostriatum was performed in the laboratory of Dr. Philip Groves. After receiving her degree, she joined the National Center for Microscopy and Imaging Research (NCMIR), then newly founded at the University of California, San Diego by Dr. Mark Ellisman. NCMIR is an NIH-established research resource dedicated to the advancement of 3D multiscale imaging technologies for unraveling the molecular and structural complexity of the nervous system.

Martone is the principal investigator of the Neuroinformatics Framework project, a national pilot project awarded by the NIH to establish a uniform resource description framework for neuroscience. She is head of the Cell Centered Database project, an on-line database for electron tomography and correlated light and electron microscopic data. Her recent work has focused on building ontologies for neuroscience to facilitate data exchange and integration, and integrating such ontologies into image analysis and data mining tools



Fritz Sommer

Adjunct Professor, Redwood Center for Theoretical Neuroscience & Helen Wills
Neuroscience Institute
University of California, Berkeley
Faculty member (Hochschuldozent), Department of Computer Science, University of Ulm

Sommer's lab investigates the theoretical principles how neurons and networks in the brain collaborate and organize to produce perception, memory and ultimately cognition. To study these issues he develops computational models of the brain, as well as advanced techniques of data analysis.

Sommer is interested in how public data sharing can grow in the community of neuroscience, making the best use of the precious resource of experimental data and to allow their analysis from many diverse angles. In other fields, such as genomics and linguistics, data sharing has become ubiquitous and highly successful, but neuroscience is still at the beginning. His lab is building the core facilities for a new data sharing initiative in Neuroscience CRCNS.org. Further he is a member of the task force for electrophysiology data sharing administered by the International Neuroinformatics Coordination Facility in Stockholm, Sweden.

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Karel Svoboda

Group Leader

HHMI Janelia Farm Research Campus

Karel Svoboda's lab is working on the structure, function and plasticity of neocortical circuits, mostly in the context of somatosensation. He has a long-standing interest in the development of optical, physiological and molecular methods for neuroscience.

Svoboda received a BA in physics from Cornell University and a PhD in Biophysics from Harvard University. For his thesis work, with Steven Block and Howard Berg, he measured the molecular movements and forces of individual kinesin molecules, a molecular motor common to all eukaryotic cells. His postdoctoral work, with Winfried Denk and David Tank at Bell Labs, focused on synaptic and dendritic function in the cortex. From 1997 until 2006 he was a Professor at Cold Spring Harbor Laboratory and an HHMI Investigator.

Karel Svoboda's lab is searching for the substrates of experience-dependent plasticity in the developing and adult neocortex. The functional properties of the brain must change in response to salient sensory experiences, but the nature of these changes at the level of synapses, neurons, and their networks (also known as the engram) is unknown.

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Observer Profiles



Miyoung Chun

Executive Vice President of Science Programs
The Kavli Foundation

Dr. Chun's career spans a wide range of experience in academia and industry. Her academic career began as an Assistant Professor of Biochemistry at Boston University School of Medicine in 1995. There she taught in the areas of cell biology and molecular medicine, and conducted research in signal transduction of G-protein coupled receptors. From 1999 to 2004 she worked for Millennium Pharmaceuticals Inc. as a scientist and project leader, where her research focused on genomics/functional genomics and on molecular imaging in drug discovery and development. She discovered and characterized novel genes that are important to inflammatory and cardiovascular diseases, and has over 30 U.S. and International issued/published patents. In 2004 she moved back to academia as Assistant Dean of Science and Engineering at the University of California, Santa Barbara (UCSB) and Director of International Research Advancement at UCSB. In this role she was active in building partnerships among academia, government and industry around the globe. She joined The Kavli Foundation in 2007.

Chun obtained her Ph.D. degree in Molecular Genetics from The Ohio State University in 1990 and was a Postdoctoral Fellow at MIT's Whitehead Institute studying the cell and molecular biology of receptors.



Christopher Martin

Science Program Officer
The Kavli Foundation

Dr. Martin's interests span the continuum from physics to public policy. Prior to joining the foundation, Martin was a professor of physics and astronomy at Oberlin College (2004-2013) where he studied the Milky Way Galaxy using the Herschel Space Observatory, long duration balloon missions, and telescopes around the world. During his tenure at Oberlin, he spent a year as an American Association for the Advancement of Science Congressional Fellow with the United States Senate Committee on Commerce, Science, and Transportation and was involved in the America COMPETES Reauthorization Act of 2010, space policy, nanotechnology, and the federal funding of science research.

Dr. Martin completed his Ph.D. in theoretical physics at the University of California Santa Barbara in 1999, and then became the Station Science Leader at the Amundsen-Scott South Pole Station and spent two years wintering over at the bottom of the Earth during his postdoctoral fellowship at the Harvard Smithsonian Center for Astrophysics.

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Robert Wells

Healthymagination

Advisor to General Electric

Estados Unidos

Robert Wells has more than twenty years experience in public policy, government relations, and international corporate development. He joined GE's healthyMagination initiative as an advisor in May 2013 and is working on developing the groups international presence and thought leadership initiatives.

Prior to GE, Wells served with the Organisation for Economic Cooperation and Development (OECD) from 2009 to 2012 as head of the Biotechnology Unit in the Directorate for Science, Technology and Industry. There he oversaw the OECD Secretariat's work in conjunction with both the Working Party on Biotechnology and the Working Party on Nanotechnology. He covered a broad range of policy-related subject matter in various emerging fields, such as innovation in human health and biomedicine, green growth, industrial biotechnology, synthetic biology, biosecurity, and the development of knowledge networks and markets using intellectual property.

Prior to joining the OECD, Wells co-founded HealthFutures, LLC, a Washington, DC- and Boston-based consulting firm specializing in public policy issues impacting the emerging field of personalized, predictive and preventive medicine. From 2001 to 2007, Wells served with Affymetrix, Inc. as Vice President for Corporate Affairs and International Markets. He did his undergraduate work at the University of North Carolina, Chapel Hill and holds a J.D. degree from the Wake Forest University School of Law. He resides in Boston with his wife and daughter.