New Faculty

Aaron D. Ames

Bren Professor of Mechanical and Civil Engineering

Aaron Ames develops fundamental theory bridging the areas of robotics, nonlinear control, and hybrid systems, with a heavy emphasis on applications to bipedal robotic walking—both formally and through experimental validation. His lab designs, builds, and tests novel bipedal robots, humanoids, and prostheses with the goal of achieving human-like bipedal robotic locomotion and translating these capabilities to robotic assistive devices. The application of these ideas range from increased autonomy in legged robots to improved locomotion capabilities in the mobility impaired.

He received a BS in mechanical engineering and a BA in mathematics from the University of St. Thomas and his MA in mathematics and PhD in electrical engineering and computer sciences from UC Berkeley. He was a postdoctoral scholar in control and dynamical systems at Caltech and then began his faculty career at Texas A&M University. Prior to returning to Caltech as Bren Professor, he was at the Georgia Institute of Technology as an associate professor in the Woodruff School of Mechanical Engineering and the School of Electrical and Computer Engineering.

To learn more about our new faculty's research and accomplishments, visit eas.caltech.edu/people.

Soon-Jo Chung

Associate Professor of Aerospace

Soon-Jo Chung's research focuses on nonlinear control and estimation theory as well as motion planning and flight control, with application to spaceborne interferometry, spacecraft swarms, and robotic spacecraft systems. Other areas of research include aerial robotics, bioinspired flight, and vision-based navigation. At Caltech, he is establishing a research and education program in distributed spacecraft systems and aerospace autonomous systems.

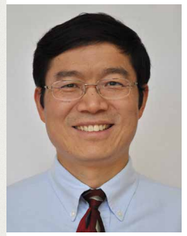
He received his BS in aerospace engineering from the Korea Advanced Institute of Science and Technology (KAIST). He then went to the Massachusetts Institute of Technology (MIT) to earn his MS in aeronautics and astronautics and ScD in estimation and control with a minor in optics. Prior to joining Caltech, he was on the faculty at Iowa State University and the University of Illinois at Urbana-Champaign. He has a strong collaboration with the Jet Propulsion Laboratory on distributed small satellites.

Andrew M. Stuart

Bren Professor of Computing and Mathematical Sciences

Andrew Stuart's research is in applied and computational mathematics—in particular, in the analysis and development of effective algorithms and the creation of mathematical frameworks within which to further the analysis and development of those algorithms. His current research focus is on the interfacing of mathematical models with data, and more specifically the solution of inverse problems and data assimilation. He has developed foundational mathematical frameworks for the formulation of statistical inverse problems, where both model and data are uncertain, and for filtering of high-dimensional systems; guiding applications for this work include subsurface geophysics and atmospheric modeling.

He graduated in mathematics from Bristol University and then obtained his PhD from the Oxford University Computing Laboratory. After a postdoctoral appointment in mathematics at MIT, he held permanent positions at Bath University in mathematics and at Stanford University in the computer science and mechanical engineering departments before joining the Warwick University Mathematics Institute.



Lihong Wang

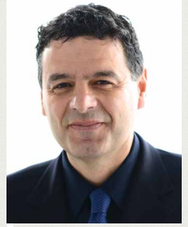
Bren Professor of Medical Engineering and Electrical Engineering

Lihong Wang's primary research interest is in the development of novel biomedical imaging technologies. His laboratory was the first to report functional photoacoustic tomography, 3-D photoacoustic microscopy, photoacoustic endoscopy, photoacoustic reporter gene imaging, the photoacoustic Doppler effect, the universal photoacoustic reconstruction algorithm, microwave-induced thermoacoustic tomography, ultrasound-modulated optical tomography, time-reversed ultrasonically encoded optical focusing, nonlinear photoacoustic wavefront shaping, compressed ultrafast photography (100 billion frames/second), Mueller-matrix optical coherence tomography, and optical coherence computed tomography.

He obtained his BS and MS from the Huazhong University of Science & Technology in Wuhan, China, and his PhD from Rice University. Prior to joining the Caltech faculty, he held the Gene K. Beare Distinguished Professorship of Biomedical Engineering at Washington University in St. Louis.

Moore Scholar

The Moore Distinguished Scholar program was established by Gordon and Betty Moore to invite researchers of exceptional quality who are distinguished at both the national and international levels to visit the California Institute of Technology for three to six months. There are no teaching or other obligations during the appointment, allowing Moore Scholars to focus on research.



Petros Koumoutsakos

Chair for Computational Science, ETH Zurich

Petros Koumoutsakos conducts research at the interface of simulation and data sciences with an emphasis on fundamentals and applications in the areas of fluid mechanics, life sciences, and nanotechnology.

He received his diploma from the National Technical University of Athens, Greece, and his first MS from the University of Michigan in naval architecture. He also received an MS and PhD in aeronautics and applied mathematics from Caltech. He joined ETH Zurich as Assistant Professor of Computational Fluid Dynamics and was then named Professor of Computational Science. Later, he became the founding director of the ETH Zurich Computational Laboratory and the Zurich Graduate School for Computational Science. In addition to being a Caltech Moore Scholar, he is a fellow of the Collegium Helveticum and of the Radcliffe Institute at Harvard University.

Michael M. Watkins

Professor of Aerospace and Geophysics; Vice President and Director of the Jet Propulsion Laboratory

Before being appointed as the JPL director, Dr. Watkins was the Clare Cockrell Williams Centennial Chair in Aerospace Engineering and Director of the Center for Space Research at the University of Texas at Austin. Prior to his time at the University of Texas, he worked at JPL for 22 years. He served as mission manager and mission system manager for the Mars Science Laboratory's Curiosity rover, led review and development teams for several missions, including the Cassini, Mars Odyssey, and Deep Impact probes, and was the project scientist leading science development for the GRAIL moon-mapping satellites, the GRACE Earth science mission, and the GRACE Follow-On mission. He also served as manager of the JPL Science Division and the chief scientist for the Engineering and Science Directorate. He holds a BS, MS, and PhD in aerospace engineering from the University of Texas at Austin.