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Brief Biosketch

Krishna V. Shenoy, PhD, is the Hong Seh and Vivian W. M. Lim Professor of Engineering. He is with the Departments of Electrical Engineering and by courtesy, Bioengineering and Neurobiology at Stanford University. He is also a Howard Hughes Medical Institute Investigator. Prof. Shenoy holds a BS in Electrical and Computer Engineering from UC Irvine (1987-1990), a PhD in Electrical Engineering and Computer Science from MIT (1990-1995), was a postdoctoral fellow in Neurobiology at Caltech (1995-2001), and has been on faculty at Stanford since then (Assistant Prof. 2001-2008, Associate Prof. 2008-2012, Full Prof. 2012-2017, Endowed Chair 2017 to present). Prof. Shenoy directs the Stanford Neural Prosthetic Systems Lab (basic neuroscience and engineering) and co-directs the Stanford Neural Prosthetics Translational Laboratory (clinical trials), which aim to help restore lost motor function to people with paralysis. Honors and awards include a Burroughs Wellcome Fund Career Award in the Biomedical Sciences, a Sloan Fellow, a McKnight Technological Innovations in Neurosciences Award, an NIH Director's Pioneer Award, the 2010 Stanford University Postdoc Mentoring Award, election as a Fellow of the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows, and the 2018 recipient of the Andrew Carnegie Mind and Brain Prize from Carnegie Mellon Unversity. Prof. Shenoy serves on the Scientific Advisory Boards of The University of Washington's Center for Sensorimotor Neural Engineering (a National Science Foundation Engineering Research Center), CTRL-Labs Inc., MIND-X Inc., Inscopix Inc. and Heal Inc. He is also a consultant for Neuralink Corp.

Full Biosketch

Research

Prof. Shenoy directs the Neural Prosthetic Systems Lab (NPSL) at Stanford University, where his group conducts neuroscience and neuroengineering research to better understand how the brain controls movement and to design medical systems to assist those with movement disabilities. His neuroscience research investigates the neural basis of movement preparation and generation using a combination of electrophysiological, behavioral,

computational and theoretical techniques. His neuroengineering research investigates the design of high-performance neural prosthetic systems, which are also known as brain-computer interfaces and brain-machine interfaces. These systems translate neural activity from the brain into control signals for prosthetic devices, which assist people with paralysis by restoring lost function. This work includes statistical-signal processing, machine learning, low-power circuits and real-time system modeling and implementation. Shenoy co-directs (along with Professor Jaimie Henderson, MD, Neurosurgery) the Neural Prosthetics Translational Laboratory (NPTL; 2009–present) which conducts brain-machine interface FDA clinical trials with people with paralysis.

Teaching
Prof. Shenoy's teaching includes: EE112 Electronics II, EE113 Electronics III, EE101B Circuits II, EE418 Topics in Neuroengineering, EE302 Topics in Biomedical Electronics, and EE124 Introduction to Neuroelectrical Engineering.

Education & Appointments
Prof. Shenoy attended the University of California, San Diego from 1986-1987, received his B.S. (summa cum laude) in electrical and computer engineering from the University of California, Irvine (advisor G.L. Shaw) in 1990, and received both his S.M. and Ph.D. in electrical engineering and computer science from MIT (advisor C.G. Fonstad, Jr.) in 1992 and 1995. "Monolithic optoelectronic VLSI design and fabrication for optical interconnects," Shenoy KV (1995), Doctoral dissertation, MIT Department of Electrical Engineering and Computer Science (pdf url). He was then a postdoctoral fellow in neurobiology at Caltech (advisor R.A. Andersen) from 1995-2001. He joined the Stanford University faculty as an Assistant Professor in 2001, was promoted to Associate Professor in 2008, promoted to Full Professor in 2012, and was appointed as the inaugural Hong Seh and Vivian W. M. Lim Professor (Endowed Chair) in the School of Engineering in 2017. In 2015 Shenoy became a Howard Hughes Medical Institute Investigator at Stanford University. He is with the Departments of Electrical Engineering and, by courtesy, of Neurobiology and Bioengineering.

Honors & Awards
Prof. Shenoy's honors and awards include the following: Tau Beta Pi (engineering) and Eta Kappa Nu (electrical engineering) honor societies, NSF & Hertz Foundation graduate fellowships, the 1995 Hertz Foundation Doctoral Thesis Prize, Burroughs Wellcome Fund Career Award in the Biomedical Sciences (1999), Alfred P. Sloan Research Fellow (2002), Defense Science Research Council (DSRC/DARPA) Fellow (2003-2005), a McKnight Technological Innovations in Neurosciences Award (2007), a Charles Lee Powel Faculty Scholar (2008), an NIH Director’s Pioneer Award (2009), the 2010 Stanford University Postdoc Mentoring Award, the Award of Excellence in Research by the North American Konkani Association (2012), a University of California at Irvine Distinguished Alumnus Award in the Henry Samueli School of Engineering (2013), elected to the The Henry Samueli School of Engineering Hall of Fame at the University of California at Irvine (2015), election as a Fellow of the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows (2016) with the citation "For remarkable discoveries about the neural mechanisms underlying motor control as the basis of new advanced brain-machine interfaces for motor prosthetics," and the 2018 recipient of the Andrew Carnegie Mind and Brain Prize from Carnegie Mellon University.

Service, Memberships & Directorships
Prof. Shenoy's service, memberships and directorships include: IEEE (1988-) and IEEE Senior Member (2006), Society for Neuroscience (1995-), Neural Control of Movement Society (2001-), Defense Science Research Council (DSRC) for DARPA (Fellow 2003-2005, Member 2005-2009), American Physiological Society (2007), NSF IGERT Co-Dirctor with Prof. Jay McClelland (2008-2014), Journal of Neurophysiology editorial board (2008-), Director (PI) of DARPA-DSO/BTO's "REPAIR" Project spanning 10 investigators at 4 institutions (Brown: Burwell, Connors, Donoghue, Hochberg, Nurmikko (Co-Director), Scheinberg; Stanford: Deisseroth, Shenoy; University College London: Sahani; UCSF: Sabes), Co-PI (PI: Deisseroth) of DARPA-BTO's "NeuroFAST" Project.

Scientific Advisory Boards and Consulting
Prof. Shenoy serves on the boards of The University of Washington's Center for Sensorimotor Neural Engineering (a National Science Foundation Engineering Research Center), CTRL-Labs Inc., MIND-X Inc., Inscopix Inc. and Heal Inc. He is also a consultant for Neuralink Corp.

Student and Postdoc Training and Placement Summary as often requested by NIH and NSF

Predoctoral (PhD) students: 20. 13 of the 20 (65%) went on to postdoctoral positions (Byron Yu PhD, John Cunningham PhD, Vikash Gilja PhD, Cynthia Chestek PhD, Matthew Kaufman PhD, Paul Nuyujukian MD PhD, Cora Ames PhD, Sergey Stavisky PhD, Jonathan Kao PhD, Daniel O'Shea PhD, Eric Trautmann PhD, Megan Wang PhD, Saurabh Vyas PhD), with 7 of these 13 (54%) (Yu, Cunningham, Gilja, Chestek, Kaufman, Nuyujukian, Kao) now in tenure-track faculty positions and 6 of these 13 (46%) (Ames, Stavisky, O'Shea, Trautmann, Wang, Vyas) currently postdocs. 7 of the 20 (35%) went on to industry (Gopal Santhanam PhD, Afsheen Afshar MD PhD, Rachel Kalmar PhD, Zuley Rivera Alvidrez PhD, Werapong Goo PhD, Justin Foster PhD, Nir Even-Chen PhD).

Postdoctoral trainees: 17. 13 of the 17 (76%) went on to tenure-track assistant professorships at major US or European Universities (Aaron Batista PhD, Byron Yu PhD, John Cunningham PhD, Mark Churchland PhD, Cynthia Chestek PhD, Vikash Gilja PhD, Ilka Diester PhD, Paul Kalanithi MD, Matthew Kaufman PhD, Chethan Pandarinath PhD, Jonathan Kao PhD, Paul Nuyujukian PhD, Chand Chandrasekaran PhD). Of these 13, 5 (29%) are pre-tenure (Chandrasekaran, Kao, Kaufman, Pandarinath, Nuyujukian). Of these 13, 1 (12%) is up for tenure currently (Gilja). Of these 13, 6 (46%) have come up for tenure, with all receiving tenure (Batista, Chestek, Cunningham, Churchland, Diester, Yu). Regarding the other 4 of the 17: 1 (6%) is deceased (Paul Kalanithi MD), 1 (6%) went on to private neurosurgical practice and industry (Matthew MacDougall MD, California Pacific Medical Center and Neuralink Inc.), 1 (6%) went on to private neurosurgical practice and adjunct professorship (Stephen Ryu MD, Palo Alto Medical Foundation and Stanford EE), 1 (6%) went on to industry and an adjunct professorship (David Sussillo PhD, Google AI (Brain)and Stanford EE) and 1 (6%) went on to a postdoc (Jonathan Michaels PhD).