BIOGRAPHICAL SKETCH

Provide the following information for all PIs and collaborators.
DO NOT EXCEED TWO PAGES.

NAME	POSITION TITLE
Doris Y. Tsao	Professor of Biology and HHMI Investigator

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
Harvard University	PhD	2002	Neuroscience
California Institute of Technology	BS	1996	Biology & Math

NOTE: The Biographical Sketch may not exceed two pages. Follow the formats and instructions below.

A. Personal Statement

I am a systems neuroscientist interested in the neural mechanisms underlying primate vision. The central problem I want to understand is how visual objects are represented in the brain, and how these representations are used to guide behavior. To address this, my lab is investigating mechanisms at multiple stages in the visual hierarchy, from early processes for segmenting visual input into discrete objects, to mid- and high-level perceptual processes for assigning meaningful identity to specific objects, to processes by which these perceptual representations govern behavior. Techniques we use include: electrophysiology, fMRI, electrical microstimulation, anatomical tracing, psychophysics, and mathematical modeling.

I am widely recognized for pioneering the use of fMRI to target electrodes for studying visual processing in monkeys, and in particular for my discovery and elucidation of the macaque face patch system, a network of six regions in the temporal lobe and three regions in the frontal lobe that are dedicated to face processing. The remarkable specialization of these regions for processing one specific class of complex objects has opened up many previously intractable questions about perception and cognition, which multiple labs around the world are now pursuing.

B. Positions and Honors

June 2002-Sept. 2003	Postdoctoral Scientist in the laboratory of Margaret Livingstone and David Hubel
Nov 2003 – Nov 2004	Postdoctoral Scientist in the laboratory of Roger Tootell
Dec 2004 – Dec 2008	Head of Independent Research Group, Institute for Brain Research, University of Bremen
Oct 2008 – Nov 2014	Assistant Professor of Biology, California Institute of Technology
Nov 2014 – present	Professor of Biology, California Institute of Technology
Sept 2015 – present	Investigator, Howard Hughes Medical Institute

2004	Sofia Kovalevskaya Prize, Alexander von Humboldt Foundation
2006	Eppendorf and Science International Prize in Neurobiology
2007	Technology Review TR35, World's Top 35 Innovators under Age 35
2008	Reviewing Editor, Frontiers in Systems Neuroscience
2009	Alfred Sloan Research Fellowship
2009	NARSAD Young Investigator
2009	John Merck Scholar
2009	Searle Scholar
2009	Klingenstein Scholar
2009	NSF CAREER Award

2009 Associate Editor, Journal of Neuroscience
2010 Presidential Early Career Award for Scientists and Engineers
2012 Mcknight Technological Innovations in Neuroscience Award (joint with Dr. William J. Tyler)
2012 NIH Pioneer Award
2013 Invited to give Presidential Lecture, Society for Neuroscience Conference
2014 Golden Brain Award from the Minerva Foundation
2015 Howard Hughes Medical Institute Investigator
2016 Alden Spencer Award, Columbia University (joint with Dr. Winrich Freiwald)

C. Selected Peer-reviewed Publications

Chang, L., Tsao, DY. The code for facial identity in the primate brain. *Cell*, 2017, in press.
Moeller, S., Crapse, T., Chang, L., Tsao, DY. The effect of face patch microstimulation on perception of faces and objects. *Nature Neuroscience*, 2017, in press.
Hesse, J., Tsao, DY. Consistency of border-ownership cells across artificial stimuli, natural stimuli, and stimuli with ambiguous contours. *J Neurosci,* 2016, 36 (44) 11338-11349.
Grimaldi P., Saleem, KS., Tsao, DY. Anatomical connections of functionally defined 'face patches in the macaque visual system. *Neuron*, 2016, 90(6) p. 1325-42
Meyers, E, Borzello, M, Freiwald, MA, Tsao, DY. Intelligent information loss: the coding of facial identity, head pose, and non-face information in the face patch system. *J Neurosci*, 2015, 35(18):7069-81
Dubois, J, deBerker, A, Tsao, DY. Single-unit recordings in the macaque face patch system reveal limitations of fMRI MVPA. *J Neurosci*, 2014, in press.
Ohayon, S, Grimaldi, P, Tsao, DY., Saccade modulation by optical and electrical stimulation in the macaque frontal eye field. *J Neurosci*, 2013. 33(42): p. 16684-97.
Kornblith, S, Cheng, X, Ohayon, S, Tsao, DY. 2013. A Network for Scene Processing in the Macaque Temporal Lobe. *Neuron* 79(4): p. 766-81.
Ohayon, S, Freiwald, WA, Tsao, DY. 2012. What makes a cell face selective: the importance of contrast. *Neuron*, 74 (3), 567-581.
Ohayon, S, Tsao, DY. 2011. MR-Guided stereotactic navigation. *Journal of Neuroscience Methods* 204 (2), 389-39.
Freiwald, WA*, Tsao DY*. 2010. Functional compartmentalization and viewpoint generalization within the macaque face processing system. *Science*, 330: 845-851. *co-first author.
Freiwald WA*, Tsao DY*, Livingstone MS. 2009. A face feature space in the macaque temporal lobe. *Nature Neuroscience*, 12: 1187 – 1196. *co-first author.
Moeller S*, Nallasamy N*, Tsao DY*, Freiwald W. 2009. Functional connectivity of the macaque brain across stimulus and arousal states. *Journal of Neuroscience*, 29: 5897-5909. *co-first author.
Tsao DY, Schweers N, Moeller S, Freiwald WA. 2008. Patches of face-selective cortex in the macaque frontal lobe. *Nature Neuroscience*, 11: 877-879.
Moeller S, Freiwald WA, Tsao DY. 2008. Patches with links: a unified system for processing faces in the macaque temporal lobe. *Science*, 320: 1355-1359.
Tsao DY, Freiwald WA, Tootell RBH, Livingstone MSL. 2006. A cortical region consisting entirely of face cells. *Science,* 311: 670-674.