Stanford



Sasidhar Madugula

Postdoctoral Scholar, Neurosurgery

Curriculum Vitae available Online

Bio

PROFESSIONAL EDUCATION

- Doctor of Medicine, Stanford University , MED-MD (2024)
- Doctor of Philosophy, Stanford University , NEURS-PHD (2023)
- B.S., University of Illinois at Chicago , Bioengineering (2012)
- Msc, University of Oxford , Clinical Neuroscience (2013)
- MD/PhD, Stanford University , Neuroscience (2024)

STANFORD ADVISORS

- Jaimie Henderson, Postdoctoral Faculty Sponsor

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focuses on high-precision neural interfaces and the development of next-generation brain-computer interfaces (BCIs) for sensory and motor restoration. I am particularly interested in the biophysics of electrical stimulation, systems neuroscience, and the decoding of neural activity for high-fidelity communication and control. My work spans both fundamental and translational neuroscience.

LAB AFFILIATIONS

- Jaimie Henderson, NPTL (8/19/2024)
- E.J. Chichilnisky, Chichilnisky Lab (7/5/2015)

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (PhD Program)

Publications

PUBLICATIONS

- **Inference of Electrical Stimulation Sensitivity from Recorded Activity of Primate Retinal Ganglion Cells.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*

  Madugula, S. S., Vilkhu, R., Shah, N. P., Grosberg, L. E., Kling, A., Gogliettino, A. R., Nguyen, H., Hottowy, P., Sher, A., Litke, A. M., Chichilnisky, E. J.

  2023

- **Efficient Modeling and Calibration of Multi-Electrode Stimuli for Epiretinal Implants**
  Vasireddy, P. K., Gogliettino, A. R., Brown, J. B., Vilkhu, R. S., Madugula, S. S., Phillips, A. J., Mitra, S., Hottowy, P., Sher, A., Litke, A., Shah, N. P., Chichilnisky, E. J., IEEE
  IEEE.2023

- **Focal electrical stimulation of human retinal ganglion cells for vision restoration.** *Journal of neural engineering*
  Madugula, S. S., Gogliettino, A. R., Zaidi, M., Aggarwal, G., Kling, A., Shah, N. P., Brown, J. B., Vilkhu, R., Hays, M. R., Nguyen, H., Fan, V., Wu, E. G., Hottowy, et al
  2022; 19 (6)

- **Inferring retinal ganglion cell light response properties from intrinsic electrical feature**
  Zaidi, M., Aggarwal, G., Shah, N. P., Karniol-Tambour, O., Goetz, G., Madugula, S., Gogliettino, A. R., Wu, E. G., Kling, A., Brackbill, N., Sher, A., Litke, A. M., Chichilnisky, et al
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021

- **Automatic Identification of Axon Bundle Activation for Epiretinal Prosthesis** *IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING*
  Tandon, P., Bhaskhar, N., Shah, N., Madugula, S., Grosberg, L., Fan, V. H., Hottowy, P., Sher, A., Litke, A. M., Chichilnisky, E. J., Mitra, S.
  2021; 29: 2496-2502

- **Epiretinal stimulation with local returns enhances selectivity at cellular resolution.** *Journal of neural engineering*
  Fan, V. H., Grosberg, L. E., Madugula, S. S., Hottowy, P., Dabrowski, W., Sher, A., Litke, A. M., Chichilnisky, E. J.
  2018

- **Electrical stimulus artifact cancellation and neural spike detection on large multi-electrode arrays** *PLOS COMPUTATIONAL BIOLOGY*
  Mena, G. E., Grosberg, L. E., Madugula, S., Hottowy, P., Litke, A., Cunningham, J., Chichilnisky, E. J., Paninski, L.
  2017; 13 (11): e1005842

- **Optimizing Selectivity of Epiretinal Stimulation using Local Returns**
  Fan, V., Grosberg, L. E., Madugula, S., Hottowy, P., Dabrowski, W., Sher, A., Litke, A. M., Chichilnisky, E. J.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2017

- **Activation of ganglion cells and axon bundles using epiretinal electrical stimulation.** *Journal of neurophysiology*
  Grosberg, L. E., Ganesan, K., Goetz, G. A., Madugula, S. S., Bhaskhar, N., Fan, V., Li, P., Hottowy, P., Dabrowski, W., Sher, A., Litke, A. M., Mitra, S., Chichilnisky, et al
  2017: jn 00750 2016-?