# Sridhar Sunderam

https://www.engr.uky.edu/directory/sunderam-sridhar

## Professional Preparation

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| Annamalai University, India | Chemical Engineering | B.E. | 1991 |
| University of Kansas, Lawrence, KS | Chemical Engineering | M.S. | 1995 |
| University of Kansas, Lawrence, KS | Chemical Engineering | Ph.D. | 1999 |

## Appointments

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| 2019- | Director of Graduate Studies, Dept. of Biomedical Engg, Univ. of Kentucky |
| 2016- | Associate Professor, Department of Biomedical Engineering, Univ. of Kentucky |
| 2009-16 | Assistant Professor, Department of Biomedical Engineering, Univ. of Kentucky |
| 2014- | Founding member, EpiC, Epilepsy Research Center of the University of Kentucky |
| 2013- | Faculty Associate, Spinal Cord & Brain Injury Research Center, U. of Kentucky |
| 2006-2009 | Research Associate, Pennsylvania State University |
| 2005-2006 | Research Assistant Professor, George Mason University |
| 1998-2005 | R&D Engineer, Flint Hills Scientific |
| 1993-1998 | GRA/GTA, University of Kansas |
| 1991-1993 | Research Assistant, Indian Institute of Science |

## Some Relevant Papers

1. Huffman D, Ajwad A, Yaghouby F, O'Hara BF, Sunderam S. A real-time sleep scoring framework for closed-loop sleep manipulation in mice. J Sleep Res. 2021 Jan 6:e13262.
2. Yaghouby F, Donohue KD, O'Hara BF, Sunderam S (2015). Noninvasive dissection of mouse sleep using a piezoelectric motion sensor. *J Neurosci Methods*. 259:90-100.
3. Yaghouby F and Sunderam S (2015). Quasi-supervised scoring of human sleep in polysomnograms using augmented input variables. *Comput Biol Med*. 259:90-100.
4. Sunderam S, Gluckman BJ, Reato D, Bikson M (2010). Toward rational design of electrical stimulation strategies for epilepsy control. Review. *Epilepsy and Behavior*, 17(1):6-22.
5. Osorio I, Frei MG, Sunderam S, Giftakis J, Bhavaraju NC, Schaffner SF, Wilkinson SB (2005). Automated seizure abatement in humans using electrical stimulation. *Annals of Neurology*, 57:258-68.

## Some Others

1. Yaghouby F, O'Hara BF, Sunderam S (2016). Prediction of mouse sleep scores and dynamics using a graphical model of EEG measurements. *Int J Neural Syst*. 26(4):1650017.
2. Yaghouby F, Sunderam S (2016). *SegWay*: A simple framework for sleep segmentation in experimental EEG recordings. *MethodsX*. 3:144-55.
3. Sunderam S, Talathi SS, Lyubushin A, Sornette D, Osorio I (2011). Challenges for emerging neurostimulation-based therapies for real-time seizure control. *Epilepsy and Behavior*, 22(1):118-25.
4. Sunderam S, Chernyy N, Peixoto N, Mason JP, Weinstein SL, Schiff SJ, Gluckman BJ (2009). Seizure entrainment with polarizing low frequency electric fields in a chronic animal epilepsy model. *J Neural Eng*, 6(4):046009.
5. Sunderam S, Chernyy N, Peixoto N, Mason JP, Weinstein SL, Schiff SJ and Gluckman BJ (2007). Improved sleep-wake and behavior discrimination using MEMS accelerometers. *J Neurosci Methods*, 163: 373-83.

## Synergistic Activities

1. **Professional and honor societies:** Brain Computer Interface Society (2016- ), IEEE-EMBS (2013- ), Sleep Research Society (2013- ), American Epilepsy Society (2009- ), Society for Neuroscience (2005- ), American Institute of Chemical Engineers (1993-2005), Indian Inst. of Chemical Engineers (1991-93), Phi Beta Delta Intl. Honors Society (1997-99).
2. **Grant Review:** Served on several NSF CBET panels (since 2016): Neural Engineering and Brain Mapping; Signals and Systems; NeuroCognitive Systems; Imaging, Sensors and Signals. NIH panels: ETTN-10 Emerging Technology and Training in Neuroscience – SBIR (ad hoc since 2010); Development of a Device to Objectively Measure Pain – SBIR/STTR (Special Emphasis Panel, Mar 2018).
3. **AES/NINDS Epilepsy Research Benchmarks Stewards Committee (2014-16):** Coverage of progress in and recommendations for Benchmarks Area III.E: "Improve treatment options for controlling seizures and epilepsy-related conditions without side-effects - Identify, develop, and improve interventions to acutely predict, prevent, or terminate seizures."
4. **STEM Outreach:** Conducted Kentucky Brain Scholars Summer Program, in which students from Kentucky State University, a minority-serving institution, spent 6-8 weeks each summer (2016-18) to participate in hands-on neural engineering related projects in the Department of Biomedical Engineering, University of Kentucky (sponsor: NSF-EPSCoR).
5. **Awards and Honors:** Fellow of the American Epilepsy Society (2020); Mentor Recognition Award, CCTS, Univ. of Kentucky (2019); BME Outstanding Teacher Award, Univ. of Kentucky (2018); Promising Young Investigator recognition, Editorial Board of *Epilepsy and Behavior* (2011); Epilepsy Foundation of America postdoctoral research fellowship (2009); Outstanding Ph.D. award in Chemical Engineering, University of Kansas (2000).

## Collaborators & Advisees

**Collaborators or co-authors (past 48 months).** O'Hara, B.F., Donohue, K.D., Sawaki, L., Bensalem-Owen M., Yu G., Patwardhan A.R., Blalock E.M., Duncan M.J., Bauer B., Pauly J., Gentry M., Murphy M.P., A. Bachstetter (University of Kentucky); Besio W. (Rhode Island); Ding L. (Oklahoma); Modur, P. (UT-Southwestern, Austin).

**Graduate and Postdoctoral Advisors.**
Marylee Z. Southard (PhD Advisor), University of Kansas
Bruce J. Gluckman (postdoctoral advisor), Penn State University

**Thesis Advising: 12 graduate students and 3 postdoctoral scholars (at UK).**
*Postdoc:* Rajamanickam Y. (2016-17, now Research Fellow, Nanyang Tech., Singapore); Kawala-Janik A. (2016-17, now Assistant Professor at Opole University, Poland); Wang H. (2015-18, now at Google).
*Graduate students:* Salmon-Powell E. (M.S. 2013, now at Cardinal Hill Rehab. Hospital), Yaghouby, F. (Ph.D. 2015, now at US FDA), Ajwad, A. (Ph.D. 2018, now at University of Diyala, Iraq), Al-Bakri, A. (Ph.D. 2020, now at University of Babylon), Schildt C (M.S. 2016), Huffman, D. (Ph.D. 2014- ), Thomas S. (M.S. BME, 2018, UK med school), Haddix C. (Ph.D. 2016- ), Wang J. (Ph.D. 2018- ), Dundon S (M.S. 2018- ), Bates M (PhD 2020- ), Iradukunda D (PhD 2020- ).
*Undergrad/Other:* Maynor S., Ndacyayisenga J.P., Neal M., Dutta S.W., Boger N., Le K.-S., Sowards L., Rizwan N., Naheyan T., Moore I., Mills R.G., Salmon E., Halliburton A, Kennedy CK, Tierney J, Metzmeier J.