Ashwin Sakhare

Neuroengineer

Los Angeles, CA
336-264-6462
sakhare@usc.edu
arsakhar.github.io/
linkedin.com/in/ashwin-sakhare/

Summary

Neuroengineer with an extensive background in clinical neuroscience, virtual reality, and neuroimaging. I have a passion for solving clinical problems through product development and actionable insights derived from data-driven approaches.

Education

University of Southern California — **May 2017 – April 2021**
PhD, Biomedical Engineering — *Los Angeles, CA*

University of Southern California — **Aug. 2015 – May 2017**
M.S., Biomedical Engineering — *Los Angeles, CA*

North Carolina State University — **Aug. 2005 – Dec. 2009**
B.S., Biomedical Engineering — *Raleigh, NC*

Select Coursework

- Applied Statistical Data Analysis
- Machine Learning for Data Science
- Signal and Systems Analysis
- Introduction to Clinical Medicine
- Pathophysiology of Nervous System
- Advanced Studies of the Nervous System

Research Experience

Doctoral Student — **May 2017 – Present**
Stevens Neuroimaging and Informatics Institute — *Los Angeles, CA*

- Validated the reliability of an MRI sequence to be used as a biomarker for brain health.
- Developed a neuroimaging analysis tool to assess cerebral flow dynamics in the brain.
- Developed a novel, immersive virtual reality game to remediate cognitive decline in older adults at risk for Alzheimer's disease.
- Designed and manufactured a custom stationary exercise bike for older adults.
- Utilized deep learning CNN models to classify meningiomas tumors on MRI.

Research Assistant — **Nov. 2008 – Dec. 2009**
Cell Mechanics Research Laboratory — *Raleigh, NC*

- Developed a clamping mechanism to affix cell scaffolds in a bioreactor, allowing for the study of cells under cyclical tensile loads.

Research Assistant — **Aug. 2007 – Dec. 2009**
Electro-Mechanics Research Laboratory — *Raleigh, NC*

- Enhanced the design of a Kerrison Rongeur, a Laminectomy surgical instrument, to allow for the secure collection of bone chips, reducing procedural times and improving patient outcomes.

Work Experience

Systems Engineer — **July 2011 – June 2015**
LipoScience — *Raleigh, NC*

- Managed design changes to Vantera, an FDA-cleared clinical blood analyzer, reducing downtime and improving sample throughput.

R&D Engineer Intern — **May 2008 – Aug. 2008**
Cook Medical — *Winston-Salem, NC*

- Developed a novel locking mechanism for an endoscopic tissue fixation device, preventing premature deployment of a tissue anchor, reducing procedural times and the risk of contamination.

Core Skills

- Virtual Reality
- Neuroimaging
- Clinical Neuroscience
- Machine Learning
- Data Science

Technical Skills

- C#
- Python
- SQL
- Unity3D
- SAS

Publications

Sakhare, AR; Barisano G., Pa J., *Assessing test-retest reliability of phase contrast MRI for measuring cerebrospinal and cerebral blood flow dynamics*. Magn Reson Med. 2019; 82:658–670.

Sakhare, AR; Yang V., Stradford J., Tsang I., Ravichandran R., Pa J., *Cycling and Spatial Navigation in an Enriched, Immersive 3D Virtual Park Environment: A Feasibility Study in Younger and Older Adults*. Front. Aging Neurosci. 2019; 218.

Extracurricular Activities

USC Street Dance Society **Aug. 2015 – July 2016**
SMART-VR Student Ambassador **Nov. 2020 – April 2021**

Patents

Sakhare, Ashwin. Surti, Vihar. 2010. Stylet Locking Mechanism for Medical Delivery Devices. U.S. Patent US20100168792 A1, filed December 30, 2008, and issued July 1, 2010.
July 2009. (Poster)

Presentations

Sakhare AR; Yang V., Delev D., Tsang I., Ravichandran R., Pa J. *Nuts and Bolts: Designing a fully integrated VR bike*. USC Virtual Technologies for Health Symposium, Los Angeles, CA, September 2018. (Poster)

Sakhare AR; Yang V., Delev D., Tsang I., Ravichandran R., Pa J. *Combined cognitive and physical activity in VR to promote brain health*. USC Virtual Technologies for Health Symposium, Los Angeles, CA, September 2018. (Poster)

Sakhare AR; Isenberg AL, Pa J. *Association between physical activity and CSF flow dynamics*. Alzheimer's Association International Conference, Chicago, IL, July 2018. (Poster)

Sakhare AR; Isenberg AL, Pa J. *Assessing test-retest reliability of phase contrast MRI for measuring cerebrospinal fluid flow dynamics in Alzheimer's disease*. American Academy of Neurology, Los Angeles, CA, April 2018. (Poster)

Sakhare AR; Pa J. *Association between physical activity and CSF flow dynamics*. Grodins Research Symposium, Los Angeles, CA, April 2018. (Poster)

Sakhare AR; Isenberg AL, Pa J. *Assessing test-retest reliability of phase contrast MRI for measuring cerebrospinal fluid flow dynamics in Alzheimer's disease*. Finch AD Symposium, Los Angeles, CA, September 2017. (Talk)

Sakhare AR; Pa J. *Assessing test-retest reliability of phase contrast MRI for measuring cerebrospinal fluid and cerebral blood flow dynamics*. Grodins Research Symposium, Los Angeles, CA, April 2017. (Poster)

Sakhare AR; Pa J. *Associations between Alzheimer's Disease Risk Factors and Cognition Across the Lifespan*. Society for Neuroscience Conference, San Diego, CA, November 2016. (Poster)

Sakhare AR; Toga A; Pa J. *Alzheimer's Disease Risk Factor Score is Associated with Cognitive Performance and Brain Volume*. Grodins Research Symposium, Los Angeles, CA, April 2016. (Poster)

Sakhare A R; Pridgen B *O*. *Modification of a Kerrison Rongeur to Include Bone-Collection and Suction Capabilities*. Undergraduate Research Symposium, Raleigh, NC, July 2009. (Poster)

Sakhare A R; Haner R; Keim R; Knouse W; Morgan D. *Automated NMR Analyzer with Lab-temperature Normalization and Vibration Isolation: Environmental Effects on Measurement of Serum Lipoproteins*. AACC Annual Conference, Houston, TX, July 2013. (Poster)

Bodle, J C; Williams J M; Phillips, M E; SooHoo, J R; Sakhare, A R; Bernacki, S H; Loboa, E G. *Novel Tensile Strain Bioreactor for Analysis of Primary Cilia-Extracellular Matrix Interactions in Adipose-Derived Stem Cells*. TERMIS-NA 2011 Annual Conference, Houston, TX, December 2011 (Poster)

Bodle, J C; Sakhare, A R; Qi, J; Bernacki, S H; Banes, A J; Loboa, E G. *The Primary Cilium: A Receptor Mediator of Osteogenesis in Human Adipose Derived Stem Cells?* TERMIS-NA 2010 Annual Conference, Orlando, FL, December 2010. (Poster)

Bodle, J C; Sakhare, A R; Qi, J; Bernacki, S H; Banes, A J; Loboa, E G. *The Primary Cilium: A Potential Receptor Antenna in Human Adipose Stem Cells?* Biomedical Engineering Society Annual Meeting, Austin, TX, October 2010. (Podium)

Bodle J C; Sakhare A R; Vidt M E; SooHoo J R, Haslauer C M; McCulloch R C; Loboa E G. *Novel Tensile Strain Bioreactor for Culture of Three-Dimensional Tissue-Engineered Constructs*. Orthopedic Research Society Annual Meeting, New Orleans, LA, March 2010. (Poster)

Bodle J C; Sakhare A R; Qi J; Bernacki S H; Banes A J; Loboa E G. *Primary Cilia: Potential Mechanotransducers in Human Adipose Derived Stem Cells?* NCTERM Conference and Innovation Summit, Winston-Salem, NC, November 2009. (Poster)

Pridgen, BO.; Sakhare A R. *Modification of a Kerrison Rongeur to Include Bone-Collection and Suction Capabilities*. NCSU Summer Undergraduate Research Symposium, Raleigh, NC, July 2009. (Poster)