Leyi Kang

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Education

University of California, San Francisco — *Master of Science in Biomedical Imaging*

09/2025 - 06/2026 (expected), San Francisco, CA

- Courses: Principles of MR Imaging, Physical Principles of CT, PET & SPECT Imaging, Imaging Probes for Nuclear and Optical Imaging, Principles of Diagnostic and Therapeutic Ultrasound, Image Processing and Analysis, Imaging Study Design, Imaging Laboratory, Advanced Neurological Imaging, CardioVascular Imaging, Machine Learning Algorithms for Medical Imaging

University of California, San Diego — *Bachelor of Science in Cognitive and Behavioral Neuroscience*

09/2020 - 06/2023, San Diego, CA

- Cumulative GPA: **3.82/4.00**; Major GPA: **3.98/4.00**
- Core courses: Intro to Statistics, Neurobiology of Cognition, Neuroanatomy and Physiology, Systems Neuroscience, Research Methods in Psychology, Cognitive Perspectives, Intro to Python, Brain Disorders and Cognition, Cognitive Ethnography, Developmental Cognitive Neuroscience, Cognitive Neuroscience, Sensory Neuroscience, Neuroimaging in Cognition

Skills

Deep learning, Python, MATLAB, Java, Shell script, SPSS, Freesurfer, FSL, CONN Toolbox, MRI, PET, CT, Ultrasound

Professional Experience

Changning Wang group, Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School — *Clinical Research Coordinator*

07/2023 - 08/2025, Boston, MA

- Independent project (manuscript in preparation):
  - Analyzed simultaneous PET-MR imaging data using the radiotracer [^{11}C]Martinostat to quantify HDAC expression in 41 healthy subjects, grouped by age and sex. Executed an automated segmentation pipeline in FreeSurfer to reconstruct and extract SUVR across 104 distinct brain regions.
  - Engineered and validated a suite of predictive models (SVM, Random Forest, XGBoost, CatBoost, DNN) to estimate biological age and classify demographic cohorts. Implemented Recursive Feature RFECV to isolate high-priority neuroanatomical biomarkers, identifying the thalamus, caudate, and pallidum as key predictors of epigenetic aging and achieved a regression MAE of 4.33 years in male cohorts (age range from 20 to 80) and a binary classification accuracy of 95% in female cohorts.
  - Elucidated significant sex-dimorphic epigenetic patterns, revealing that HDAC expression in the frontal and temporal lobes correlates more strongly with age in females than in males. Identified specific downregulation in DLPFC and amygdala, establishing a molecular baseline for future comparative studies in Schizophrenia and Bipolar Disorder.
- Clinical development of [11C]SY08 (marker of α-synuclein, grant#MJFF-023460) and [18F]CNY07 (marker of RIPK1, grant#AG067916):
  - recruiting, screening subjects and running MR-PET scans.
  - collecting and reconstructing MR-PET images.
  - writing protocols, consents, and other required documents from IRB.

Henry Yin group, Duke University – *Research Assistant (remote)*

04/2023 - 06/2023, San Diego, CA

I completed the course series focusing on rewards and motivations, then submitted a research proposal (unfunded) on reward processing abnormalities in recurrent MDD patients with the help from Dr. Yin. I also presented literature reviews on consciousness and AI after the course finished.

Andre Der-Avakian group, UCSD School of Medicine — *Lab Assistant*

07/2022 - 06/2023, San Diego, CA

I participated in the investigation of anhedonia in rats, aiming to establish a translational link between humans and rats in traits of depression, schizophrenia, and drug addiction. I was responsible for handling 135 Wistar rats, injecting pramipexole to induce anhedonia, and testing the anti-depressant effects of Ketamine, L-Tryptophan and in-development drugs.

Christina Wierenga group, UCSD Health – *Research Assistant*

12/2022 - 03/2023, San Diego, CA

I was responsible for recording patients' physiological and psychological outcomes during different periods of treatments, based on therapeutic assessments and self-reports. I was also the main RA who specialized in data entry, team communication, contacting patients for routine questionnaires and weekly progress reports.

Zhaoqian Teng group, Chinese Academy of Sciences — *Lab Assistant*

07/2021 - 09/2021, Beijing, China

I assisted in researching the genetic expression of Alzheimer's Disease in mice by performing routine lab work of daily PCR process, cryo-sectioning, analysis of fluorescence samples for amyloid-β, electrophoresis, setting up Morris water navigation test, electrophoresis, and staining.

Publications

1. **Kang, L.**, Tseng, A., Tseng, C.-E. J., Catanese, M. C., Meyer, T. N., Wolf, K. A., Tocci, D., Ding, W., Chen, P., Weiss, R., Kubicki, M., Shen, S., Catana, C., Zürcher, N. R., Wey, H.-Y., Hooker, J. M., Goodheart, A. E., Gomperts, S., Wang, C., & Dagnew, T. M.(in submission to Nature Communications). Machine learning driven predictive neuroepigenetic signatures of aging revealed by in vivo HDAC brain PET/MR imaging in healthy subjects.
2. Wang, C., Cheng, H., **Kang, L.**, Xu, Y., Tanzi, R. E., & Zhang, C. (in press). Innovation breakthrough in the Alzheimer's disease pharmaceutical industry.npj Drug Discovery.
3. Bai, P., Lan, Y., Liu, Y., Mondal, P., Gomm, A., Xu, Y., Wang, Y., Wang, Y., **Kang, L.**, . . . Zhang, C. (2024). Development of a new positron emission tomography imaging radioligand targeting RIPK1 in the brain and characterization in Alzheimer's disease. *Advanced Science*. https://doi.org/10.1002/advs.202309021
4. Luo, T., Zhou, Y., Wu, R., Yin, H., Xie, W., Meng, H., Zhao, C., Wang, Y., Wang, Y., **Kang, L.**, Wu, X., Wang, C., & Bai, P. (2024). Design, synthesis, and preclinical evaluation of 11C/18F-Labeled inhibitors for RIPK1 PET imaging. *European Journal of Medicinal Chemistry*, 116851. https://doi.org/10.1016/j.ejmech.2024.116851
5. Dagnew, T. M., Tseng, C. J., Yoo, C., Makary, M. M., Goodheart, A. E., Striar, R., Meyer, T. N., Rattray, A. K., **Kang, L.**, Wolf, K. A., Fiedler, S. A., Tocci, D., Shapiro, H., Provost, S., Sultana, E., Liu, Y., Ding, W., Chen, P., Kubicki, M., . . . Wang, C. (2024). Toward AI-driven neuroepigenetic imaging biomarker for alcohol use disorder: A proof-of-concept study. *iScience*, *27*(7), 110159. https://doi.org/10.1016/j.isci.2024.110159
6. Wang, Y.; Wang, Y.; Xu, Y.; **Kang, L.**; Tocci, D.; Wang, C. The Development and Evaluation of a Novel Highly Selective PET Radiotracer for Targeting BET BD1. *Pharmaceuticals 2024, 17*, 1289. https://doi.org/10.3390/ph17101289
7. Xu, Y., Xu, Y., Bagdasarian, F. A., Dagnew, T. M., Cheng, H., Wang, Y., Wang, Y., **Kang, L.**, Wey, H., Zhang, S., & Wang, C. (2024). Characterization of a Novel Pet Radioligand for Mitochondrial Complex I in Nonhuman Primate. *SSRN*. https://doi.org/10.2139/ssrn.4892257
8. Cheng, H., Liu, R., Fang, S., Li, Z., Zhang, D., Zhang, X., Chen, W., Chen, H., **Kang, L.**, Wang, J., Xu, Y., Song, S., & Shao, L. (2024). Synthesis of Easy-modified and Useful Dibenzo-[b,d]azepines by Palladium(II)-Catalyzed Cyclization/Addition with a Green Solvent. *Chemical Communications*. https://doi.org/10.1039/d3cc06321f

Conference Presentations

1. Dagnew, T.M., **Kang, L.**, Tseng, A., Wang, C. (2025, May). NeuroEpigenAI: AI-driven System for Non-invasive In Vivo Healthy Brain Aging Monitoring using Neuroepigenetics PET imaging. Martinos Center 25th Anniversary Symposium, Boston, Massachusetts.
2. **Kang, L.** (2023, September). Review of the Effects of Chronic Stress on Human Insomnia. SPIE Conference Proceedings (Print ISSN 0277-786X). 3rd International Conference on Biological Engineering and Medical Science (ICBioMed 2023), Oxford, UK.

Honors and Awards

Cathay Bank Scholarship Recipient, 2022
Revelle College Honors Student, 2022
Provost Honors, 2020-2023