



Yongkai Liu

Instructor, Radiology

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Dr. Yongkai Liu is an instructor in the Department of Radiology, Division of Neuroimaging and Neurointervention at Stanford University. His research focuses on developing and evaluating advanced techniques to improve treatment decision-making and prognostication in brain diseases—particularly stroke—using imaging and deep learning. Dr. Liu is a recipient of the prestigious K99/R00 award for his work on integrating large language models with imaging-based deep learning for stroke outcome prediction.

Prior to joining Stanford, Dr. Liu earned his Ph.D. in Physics and Biology in Medicine from UCLA under the mentorship of Prof. Kyung Sung. This rigorous training equipped him with a strong foundation in medicine, deep learning, and physics. His Ph.D. thesis, titled “Advancing Segmentation and Classification Methods in Magnetic Resonance Imaging via Artificial Intelligence,” focused on developing cutting-edge deep learning and machine learning techniques for MRI-based clinical applications. During his master’s studies, he conducted research on CT Virtual Colonoscopy under the guidance of Prof. Jerome Liang, an IEEE Fellow.

Dr. Liu has also made significant contributions to the academic community as a peer reviewer for leading journals, including The Lancet Digital Health, NPJ Digital Medicine, Medical Image Analysis, Medical Physics, Scientific Reports, British Journal of Radiology, BJR|Artificial Intelligence, Annals of Clinical and Translational Neurology, IEEE Transactions on Medical Imaging, IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Radiation and Plasma Medical Sciences, IEEE Transactions on Biomedical Engineering, and IEEE Transactions on Neural Networks and Learning Systems.

Dr. Liu is an emerging leader in neuroimaging, stroke research, and artificial intelligence. His work has earned wide recognition, including the K99/R00 Award, the 2024 AJNR Lucien Levy Award, the David M. Yousem Research Fellow Award in both 2024 and 2025, and selection as a semi-finalist for the 2024 Cornelius G. Dyke Award. These honors underscore his promise as an investigator and his potential to make significant contributions to the field (<https://med.stanford.edu/rsl/news/yongkai-liu-receives-research-fellow-award.html>). His research has also been featured in Neurology Today, including his early work linking chain-of-thought methods with clinical reasoning to help advance the use of large language models in real-world clinical care (<https://neurologytoday.aan.com/doi/10.1212/netod-blogs.10000031>).

ACADEMIC APPOINTMENTS

- Instructor, Radiology

HONORS AND AWARDS

- Abstract of Distinction, American Academy of Neurology (April 2026)

- David M. Yousem Research Fellow Award, American Society of Neuroradiology (2025)
- K99/R00 Award, National Institute of Neurological Disorders and Stroke (Oct 2024)
- Lucien Levy Award, American Journal of Neuroradiology (2024)
- David M. Yousem Research Fellow Award, American Society of Neuroradiology (2024)
- Semi-finalist for the 2024 Cornelius G. Dyke Award, American Society of Neuroradiology (2024)
- UCLA PhD Fellowship, UCLA (2018)

LINKS

- LinkedIn: <https://www.linkedin.com/in/yongkai-liu/>
- Twitter: https://twitter.com/Focus_on_aca
- Google Scholar: <https://scholar.google.com/citations?user=9nPt8pcAAAAJ&hl=en>

Publications

PUBLICATIONS

- **Deep learning-based non-contrast CT imaging markers enhance post-transfer DWI core volume prediction.** *AJNR. American journal of neuroradiology*
van Voorst, H., Konduri, P., Ter Schiphorst, A., Vandewalle, L., Liu, Y., Jiang, B., Heylen, E., Mlynash, M., Christensen, S., Dehkharghani, S., Albers, G. W., Zaharchuk, G., Lansberg, et al
2026
- **Stem cell therapy for ischemic stroke: neuroimaging approaches and evidence from a systematic review.** *Frontiers in neurology*
Jiang, B., Zhao, M., Tong, E., Liu, Y., Fettahoglu, A., Weng, W. K., Moseley, M. E., Wintermark, M., Steinberg, G. K., Zaharchuk, G.
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- **Automated Quantification of Infarct Growth in Endovascular Thrombectomy Using Deep Learning**
Talati, I., Voorst, H., Yu, Y., Liu, Y., Konduri, P. R., Albers, G., Zaharchuk, G., Heit, J.
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- **Dynamical multi-order responses and global semantic-infused adversarial learning: A robust airway segmentation method.** *Medical image analysis*
Zhang, S., Nan, Y., Fang, Y., Wang, S., Liu, Y., Papanastasiou, G., Gao, Z., Li, S., Walsh, S., Yang, G.
2025; 108: 103867
- **Both Infarcted and Noninfarcted Brain Regions Contribute to Deep Learning-Based MRI Prediction of Acute Stroke Outcome.** *AJNR. American journal of neuroradiology*
Liu, Y., Jiang, B., van Voorst, H., Yu, Y., Li, S., Feng, H., Zhang, Z., Luo, S., Liebeskind, D. S., Moseley, M. E., Albers, G., Wintermark, M., Lansberg, et al
2025
- **Deep Learning Applications in Imaging of Acute Ischemic Stroke: A Systematic Review and Narrative Summary.** *Radiology*
Jiang, B., Pham, N., van Staaldin, E. K., Liu, Y., Nazari-Farsani, S., Sanaat, A., van Voorst, H., Fettahoglu, A., Kim, D., Ouyang, J., Kumar, A., Srivatsan, A., Hussein, et al
2025; 315 (1): e240775
- **Prediction of Ischemic Stroke Functional Outcomes from Acute-Phase Noncontrast CT and Clinical Information.** *Radiology*
Liu, Y., Yu, Y., Ouyang, J., Jiang, B., Ostmeier, S., Wang, J., Lu-Liang, S., Yang, Y., Yang, G., Michel, P., Liebeskind, D. S., Lansberg, M., Moseley, et al
2024; 313 (1): e240137
- **A Clinical and Imaging Fused Deep Learning Model Matches Expert Clinician Prediction of 90-Day Stroke Outcomes.** *AJNR. American journal of neuroradiology*
Liu, Y., Shah, P., Yu, Y., Horsey, J., Ouyang, J., Jiang, B., Yang, G., Heit, J. J., McCullough-Hicks, M. E., Hugdal, S. M., Wintermark, M., Michel, P., Liebeskind, et al
2024

- **Random expert sampling for deep learning segmentation of acute ischemic stroke on non-contrast CT.** *Journal of neurointerventional surgery*
Ostmeier, S., Axelrod, B., Liu, Y., Yu, Y., Jiang, B., Yuen, N., Pulli, B., Verhaaren, B. F., Kaka, H., Wintermark, M., Michel, P., Mahammedi, A., Federau, et al
2024
- **Non-inferiority of deep learning ischemic stroke segmentation on non-contrast CT within 16-hours compared to expert neuroradiologists.** *Scientific reports*
Ostmeier, S., Axelrod, B., Verhaaren, B. F., Christensen, S., Mahammedi, A., Liu, Y., Pulli, B., Li, L., Zaharchuk, G., Heit, J. J.
2023; 13 (1): 16153
- **Functional Outcome Prediction in Acute Ischemic Stroke Using a Fused Imaging and Clinical Deep Learning Model.** *Stroke*
Liu, Y., Yu, Y., Ouyang, J., Jiang, B., Yang, G., Ostmeier, S., Wintermark, M., Michel, P., Liebeskind, D. S., Lansberg, M. G., Albers, G. W., Zaharchuk, G.
2023
- **Evaluation of Spatial Attentive Deep Learning for Automatic Placental Segmentation on Longitudinal MRI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Liu, Y., Zabihollahy, F., Yan, R., Lee, B., Janzen, C., Devaskar, S., Sung, K.
2022: 1533-1540
- **Multiparametric MRI-based radiomics model to predict pelvic lymph node invasion for patients with prostate cancer** *EUROPEAN RADIOLOGY*
Zheng, H., Miao, Q., Liu, Y., Mirak, S., Hosseiny, M., Scalzo, F., Raman, S. S., Sung, K.
2022
- **Deep Learning Enables Prostate MRI Segmentation: A Large Cohort Evaluation With Inter-Rater Variability Analysis** *FRONTIERS IN ONCOLOGY*
Liu, Y., Miao, Q., Suraweck, C., Zheng, H., Nguyen, D., Yang, G., Raman, S. S., Sung, K.
2021; 11: 801876
- **Textured-Based Deep Learning in Prostate Cancer Classification with 3T Multiparametric MRI: Comparison with PI-RADS-Based Classification** *DIAGNOSTICS*
Liu, Y., Zheng, H., Liang, Z., Miao, Q., Brisbane, W. G., Marks, L. S., Raman, S. S., Reiter, R. E., Yang, G., Sung, K.
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- **Integrative Machine Learning Prediction of Prostate Biopsy Results From Negative Multiparametric MRI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Zheng, H., Miao, Q., Liu, Y., Raman, S. S., Scalzo, F., Sung, K.
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- **ME-Net: Multi-encoder net framework for brain tumor segmentation** *INTERNATIONAL JOURNAL OF IMAGING SYSTEMS AND TECHNOLOGY*
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- **3D PBV-Net: An automated prostate MRI data segmentation method** *COMPUTERS IN BIOLOGY AND MEDICINE*
Jin, Y., Yang, G., Fang, Y., Li, R., Xu, X., Liu, Y., Lai, X.
2021; 128: 104160
- **Exploring Uncertainty Measures in Bayesian Deep Attentive Neural Networks for Prostate Zonal Segmentation** *IEEE ACCESS*
Liu, Y., Yang, G., Hosseiny, M., Azadikhah, A., Mirak, S., Miao, Q., Raman, S. S., Sung, K.
2020; 8: 151817-151828
- **Automatic Prostate Zonal Segmentation Using Fully Convolutional Network With Feature Pyramid Attention** *IEEE ACCESS*
Liu, Y., Yang, G., Afshari Mirak, S., Hosseiny, M., Azadikhah, A., Zhong, X., Reiter, R. E., Lee, Y., Raman, S. S., Sung, K.
2019; 7: 163626-163632
- **Haustral loop extraction for CT colonography using geodesics** *INTERNATIONAL JOURNAL OF COMPUTER ASSISTED RADIOLOGY AND SURGERY*
Liu, Y., Duan, C., Liang, J., Hu, J., Lu, H., Luo, M.
2017; 12 (3): 379-388