

Curriculum vitae

Shangran Qiu

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Summary

Research experience at the intersection of machine learning and medicine. Research interests include computer vision, interpretable machine learning, medical image analysis and disease diagnosis. Conducted multidisciplinary research in close collaboration with physicians to tackle clinically relevant challenges. Industrial experience in the fields of search engine and recommendation system. Hands on experience in computer vision, natural language processing, multimodal representation learning.

Education

2016 - 2022	Ph.D. in Physics Boston University, Boston, MA
2012 - 2016	B.S. in Physics Xi'an Jiaotong University, Xi'an, Shaanxi province, China
2015	No degree, international exchange study Texas A&M University, College Station, TX
2015	REU program (Research Experience for Undergraduates) University of Notre Dame, Notre Dame, IN

Areas of Interest

Computer vision methods for medical image analysis; Saliency methods
Machine learning frameworks for disease diagnosis
Medicine-specific interpretability methods for machine learning models
Validation of machine learning frameworks with medical domain knowledge
Recommendation system, deep information retrieval, multimodal learning

Teaching Experience

- 2017 Boston University, Department of Physics
Teaching Assistant
PY211: some of the basic principles of physics, including forces, motion, momentum, energy, harmonic motion etc.
- 2016 Boston University, Department of Physics
Teaching Assistant
PY105: calculus-based introduction to basic principles physics with focus on Newtonian mechanics and conservation law.

Industrial Experience

- 2022 - present **Microsoft, Inc**
Applied Scientist
Working on generating dense embeddings of documents using deep learning models for applications in different search verticals (web and image)
- 2021 Summer **Facebook, Inc**
PhD machine learning internship
Worked on improving the recommendation system for video contents in Facebook platform.
- 2019 Summer **Philips Research, North America**
Research Internship
Worked on AI-based image analysis systems for echocardiogram data

Honors & Awards

- 2021 Alvaro Rocco Memorial Prize
- 2021 Toffler Scholars in Neuroscience Award
- 2020 Boston University's Top 5 Alzheimer's Research Breakthroughs
- 2019 Boston University Data Science Day Brilliant Award
- 2014 Xi'an Jiaotong University Elite Student Award
- 2014 Siyuan Scholarship

2013

Pengkang Scholarship

Publications

† = equal contribution

- 1 Shangran Qiu[†], Matthew I. Miller[†], Prajakta S. Joshi, Joyce C. Lee, Chonghua Xue, Yunruo Ni, Yuwei Wang et al. "*Multimodal deep learning for Alzheimer's disease dementia assessment.*" *Nature Communications* 13, 3404 (2022)
- 2 Romano, Michael F., Akshara Balachandra, Xiao Zhou, Michalina Jadick, Shangran Qiu, Diya Nijhawan, Sang P. Chin, Rhoda Au, and Vijaya B. Kolachalama. "*Comparative analysis of cerebrospinal fluid markers and multimodal imaging in predicting Alzheimer's disease progression.*" *Alzheimer's & Dementia* 17, 054457 (2021).
- 3 Zhou, Xiao[†], Shangran Qiu[†], Prajakta S. Joshi, Chonghua Xue, Ronald J. Killiany, Asim Z. Mian, Sang P. Chin, Rhoda Au, and Vijaya B. Kolachalama. "*Enhancing magnetic resonance imaging-driven Alzheimer's disease classification performance using generative adversarial learning.*" *Alzheimer's research & therapy* 13, no. 1 (2021).
- 4 Qiu, Shangran[†], Prajakta S. Joshi[†], Matthew I. Miller[†], Chonghua Xue[†], Xiao Zhou, Cody Karjadi, Gary H. Chang et al. "*Development and validation of an interpretable deep learning framework for Alzheimer's disease classification.*" *Brain* 143, no. 6 (2020).
- 6 Chang, Gary H., David T. Felson, Shangran Qiu, Ali Guermazi, Terence D. Capellini, and Vijaya B. Kolachalama. "*Assessment of knee pain from MR imaging using a convolutional Siamese network.*" *European radiology* 30, no. 6 (2020).
- 7 Qiu, Shangran, Megan S. Heydari, Matthew I. Miller, Prajakta S. Joshi, Benjamin C. Wong, Rhoda Au, and Vijaya B. Kolachalama. "*PI-119: Enhancing deep learning model performance for AD diagnosis using ROI-based selection.*" *Alzheimer's & Dementia* 15 (2019).

- 8 Wang, Xiao, Quan Zhou, Jacob Harer, Gavin Brown, Shangran Qiu, Zhi Dou, John Wang, Alan Hinton, Carlos Aguayo Gonzalez, and Peter Chin. "*Deep learning-based classification and anomaly detection of side-channel signals.*" In Cyber Sensing 2018, 10630, (2018).
- 9 Qiu, Shangran, Gary H. Chang, Marcello Panagia, Deepa M. Gopal, Rhoda Au, and Vijaya B. Kolachalama. "*Fusion of deep learning models of MRI scans, Mini-Mental State Examination, and logical memory test enhances diagnosis of mild cognitive impairment.*" *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring* 10 (2018).
- 10 Zhang, Yingchao, Dmitri V. Voronine, Shangran Qiu, Alexander M. Sinyukov, Mary Hamilton, Zachary Liege, Alexei V. Sokolov, Zhenrong Zhang, and Marlan O. Scully. "*Improving resolution in quantum subnanometre-gap tip-enhanced Raman nanoimaging.*" *Scientific reports* 6, no. 1 (2016).