KEHAN QI

Mail: kehan.qi@stonybrook.edu

EDUCATION

Stony Brook University PhD Student
Biomedical Informatics *Aug 25 2025 - present*

Research Team: Led by Professor Chao Chen, homepage

Research Projects:

MR Image Reconstruction: Propose a topology-based MR image reconstruction method and validate on open datasets.
OCTA Image Translation: Propose a deep learning method for translating OCT volume to OCTA.

Relevant Courses: Imaging Informatics, Data Analytics and Software Stacks, Statistical Methods in Biomedical Informatics

University of Chinese Academy of Sciences Graduate Student
Master of Engineering in Computer Technology *Sept 01 2018 - June 26 2021*

Research Team: Led by Professor Shanshan Wang, homepage: https://people.ucas.edu.cn/~ShanshanWang?language=en

Research Projects:

Brain Stroke Segmentation in MR Images: Employ neural networks to segment brain stroke in MR images. Produced papers: 1 MICCAI as 1st author, 1 MICCAI as 3rd author, 1 IEEE Access as 3rd author, 1 ISMRM as 2nd author.
MR Image Reconstruction and Segmentation: Utilize a two-module neural network and re-weighted loss to segment and reconstruct MR images simultaneously. Produced papers: a pre-print paper as 1st author, and an ISMRM as 1st author.
Reconstructed MR Image Quality Assessment: Employ a neural network to assess MR image quality. Produced papers and patents: a pre-print paper as 1st author, a US patent as 3rd author.

Relevant Courses: Computer Architecture, Design and Analysis of Algorithms, Digital Image Processing, Data Analysis and Applications, Biomedical Informatics, Digital Signal Processing, 5G Wireless Communication, High Performance Computing and Applications, Deep Learning and Computer Vision

Zhejiang University Undergraduate Student
Bachelor of Engineering in Measurement Control Technology and Instruments *Sept 01 2013 - July 15 2017*

Relevant Courses: Linear Algebra, Calculus, Discrete Mathematics and Application, Complex Variable Functions & Integral Transformation, Probability and Mathematical Statistics, Program Design and Data Structure, Electric Circuit and Electronic Technology, Principal of Automatic Control, Integration of Electrical Circuit, Instrument System Design, Digital Signal Processing, Network Technology, Detection of Weak Signals, Electronic Information System, An Introduction to Software Engineering, HDL(Hard Descriptive Language) Language, Sensor Technology, Embedding System Design, Design of Electronic System Engineer, Production Practice in Biomedical Engineer, Sensor Networks, Digital Image System, Comprehensive Practice of System Design

WORK EXPERIENCE

Hangzhou Sitaorui Technology Company Limited Full-time Employee
Data Engineer *Apri 20 2023 - July 31 2024*

- **Main Responsibility**: Lead the real-time data platform
- **Project data processing platform**: Design and develop data platform.
  a)Design and develop a platform that processes data and report business metrics every day.
  b)Implement module to calculate business metrics every day.
  c)Design and implement module to fetch data from database to data storage every second.
  d)Design and implement module to query data from data storage.

Amazon (China) Holding Company Limited Full-time Employee
Software Development Engineer *Aug 02 2021 - Feb 10 2023*

- **Main Responsibility**: Develop seller partner fee service under project BadCat for Amazon selling business.
- **Project BadCat**: Group products into mutual classes with different fee rates.
  a)Implement module for impact analysis on launching BadCat.
  b)Implement Future Fee Estimation Report (FFER) supporting BadCat project
  c)Design and implement weekly schedule update for Bad Cat project for new or change-attribute products.

Tencent Technology (Shenzhen) Company Limited Intern
Research Intern *June 18 2020 - Sept 04 2020*

- **Main Responsibility**: Develop new methods for medical image processing.
- **Project registrated medical image quality analysis**: a) Detect landmarks from registrated CT images. b) Train a neural network to predict registrated image quality score, with lanmarks and registrated image as input. c) A Chinese patent produced.

Papers and Publications

- Lanting Yang, **Kehan Qi**, Peipei Zhang, Jiaxuan Cheng, Hera Soha, Yun Jun, Haochen Ci, Xianliang Zheng, Bo Wang, Yue Mei, Shihao Chen*, and Junjie Wang*. "Diagnosis of Forme Fruste Keratoconus Using Corvis ST Sequences with Digital Image Correlation and Machine Learning." Bioengineering 11.5 (2024): 429.
- Shanshan Wang, Hairong Zheng, **Kehan Qi**, Chuyu Rong, and Xin Liu. "Image data quality evaluation method and apparatus, terminal device, and readable storage medium." U.S. Patent Application No. 18/546,425.
- Dong Wei,**Kehan Qi**, Yuexiang Li, Jiawei Chen, Kai Ma, and Yefeng Zheng. "Image registration quality evaluation model training method, device and computer equipment", Chinese patent, Application No. CN202011308476.3. 2022.
- **Kehan Qi**, Haoran Li, Chuyu Rong, Yu Gong, Cheng Li, Hairong Zheng, and Shanshan Wang*. "Blind Image Quality Assessment for MRI with A Deep Three-dimensional content-adaptive Hyper-Network". arXiv preprint arXiv:2107.06888 (2021).
- **Kehan Qi**, Yu Gong, Xinfeng Liu, Xin Liu, Hairong Zheng, and Shanshan Wang*. "Multi-task MR Imaging with Iterative Teacher Forcing and Re-weighted Deep Learning". arXiv preprint arXiv:2011.13614 (2020).
- **Kehan Qi**, Hao Yang, Cheng Li, Zaiyi Liu, Meiyun Wang, Qiegen Liu, and Shanshan Wang*. "X-Net: Brain Stroke Lesion Segmentation Based on Depthwise Separable Convolution and Long-range Dependencies". Medical Image Computing and Computer Assisted Intervention–MICCAI 2019: 22nd International Conference, Shenzhen, China, October 13–17, 2019, Proceedings, Part III 22. Springer International Publishing, 2019.
- Hao Yang, Weijian Huang, **Kehan Qi**, Cheng Li, Xinfeng Liu, Meiyun Wang, Hairong Zheng, and Shanshan Wang* "CLCI-Net: Cross-Level Fusion and Context Inference Networks for Lesion Segmentation of Chronic Stroke". Medical Image Computing and Computer Assisted Intervention–MICCAI 2019: 22nd International Conference, Shenzhen, China, October 13–17, 2019, Proceedings, Part III 22. Springer International Publishing, 2019.
- Xin Liu, Hao Yang, **Kehan Qi**, Pei Dong, Qiegen Liu, Xin Liu, Rongpin Wang*, and Shanshan Wang*. "MSDF-Net: Multi-scale deep fusion network for stroke lesion segmentation". IEEE Access 7 (2019): 178486-178495.

Skills

- **Programming Languages**: Matlab, C/C++, Linux Shell, Python, SQL, Java
- **Python Programming Libraries**: TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Pandas
- **Data Processing Techniques**: Spark, Flink, Hive, MySQL, No-SQL
- **Amazon Web Service (AWS) Skills**: Glue, Elastic Map Reduce (EMR), Lambda Function, Message Queueing Service (SQS), Managed Service for Apache Flink, Application Programming Interface (API) Gateway, Virtual Private Cloud (VPC), Database Migration Service (DMS), Simple Storage Service (S3)