

KEHONG LIU

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Xi'an, Shaanxi Province - 710126, China

EDUCATION

- **Xidian University (XDU)** Sept. 2023 - Jun. 2026
M.Eng in Artificial Intelligence (major), College of Artificial Intelligence Xi'an, China
 - **GPA: 3.92/4.00**
 - **Advisor:** [Prof. Shuiping Gou](#)
 - Xidian University's Artificial Intelligence program ranked No.2 nationwide in the 2024 Soft Science China University Subject Ranking.
- **Xi'an University of Science and Technology (XUST)** Sept. 2019 - Jun. 2023
B.E in Computer Science and Technology (major), College of Computer Science and Technology Xi'an, China
 - **GPA: 4.3/5.0, Ranking: 1/133**
 - Xi'an University of Science and Technology's Petroleum Engineering program received an A rating in the fifth round of evaluations by the Ministry of Education

PUBLICATIONS

- [1] Shuiping Gou, **Kehong Liu***, et al. Physiological Information-Guided Network for Heart Rate Estimation from Near-Infrared Facial Video. (Co-first author, * means equal contribution) **IEEE Transactions on Instrumentation & Measurement** (Under Review). (SCI, JCR Q1)
- [2] **Kehong Liu**, Shuo Wu, Shuiping Gou, et al. Non-Contact Heart Rate Estimation From Photoplethysmography Using EEMD and Convolution-Transformer Network. **IEEE CIVEMSA** (Accept). (EI)
- [3] Xiaojian Liu, **Kehong Liu**. A Permission-Carrying Security Policy and Static Enforcement for Information Flows in Android Programs. (Student first author) **Computers & Security** (Accept). (SCI, JCR Q1)
- [4] **Kehong Liu**. STBi-YOLO: A Real-Time Object Detection Method for Lung Nodule Recognition. **IEEE Access** (Accept). (SCI, JCR Q2)


PROJECTS



- **Remote Physiological Signal Monitoring from Near-Infrared Videos** Nov. 2024 - Today
SenseTime/Xidian University [\[G\]](#)
 - Constructed an NIR facial video dataset under various lighting conditions and performed data analysis and processing
 - Developed a Transformer-based physiology-guided model to extract heart rate signals from near-infrared video, improving measurement accuracy in low-light environments.
 - Proposed a framework to extract multi-scale temporal features from rPPG signals and introduced domain-specific physiological characteristics to improve the model's robustness and generalization across different noises.
- **Multi-Organ Registration in Medical Imaging** Apr. 2023 - Today
Xidian University [\[G\]](#)
 - Proposed a multi-level cross-modal large-deformation registration method based on organ segmentation and semantic masks to address severe soft tissue deformation and large intensity differences in multi-modal registration.
 - Developed a multi-task learning framework that jointly performs medical image registration and segmentation, leveraging segmentation information to refine registration results while improving segmentation accuracy through registration.
 - Incorporated a cross-attention mechanism to effectively capture global and local features from both fixed and moving images during registration.

- **RGB-based Non-contact Heart Rate Estimation from Facial Video**
Xidian University
 - Analyzed the features in time, frequency, and time-frequency domains with continuous wavelet transform, applying modules for facial region-of-interest (ROI) detection and tracking.
 - Proposed a hybrid deep learning model based on Empirical Mode Decomposition (EMD) signal decomposition, Random Forest (RF) selection and 3D-CNN for heart rate signal estimation, incorporating the Whale Optimization Algorithm (WOA) with 3D-CNN to optimize the learning rate and the number of hidden layers of 3D-CNN model.
 - Explored the remote heart rate measurement under realistic conditions, the results showing no significant difference in the inference times of the proposed method running with or without GPU. This work resulted in a journal submission.
 - **Android Malware Detection based on Machine Learning**
Xi'an University of Science and Technology
 - Conducted Android application malicious detection by using static and dynamic analysis methods. Utilize Soot framework and FlowDroid tool to analyze the data flow graph of Android applications.
 - Collected program permission features from Android applications and construct them into feature vectors, then conduct multifamily classification by employing machine learning algorithms (i.e. Random Forest) to train a classifier model from sample dataset. This work resulted in a journal paper.

Feb. 2023 - Jun. 2024


Dec. 2019 – Dec. 2020




- EXPERIENCE
- **SenseTime-SenseCare Technology Co., Ltd.** 
Research Assistant
 - Developed facial video-based physiological Datasets and worked in project to monitor physiological signal under low-light conditions.
 - Worked with Large Models in Medical Image, including preprocessing, annotation optimization, and model training.
 - Worked with the extraction of physiological signals from NIR videos, such as respiratory rate and blood oxygen levels, to improve overall health monitoring capabilities of deep-learning models.

Sept. 2023 - Feb. 2024

Shanghai, China



HONORS AND AWARDS

- **First-Class Academic Scholarship for Graduate Students (Top 2%)**
 - **Outstanding Graduate Student (Top 2%)**
 - **Outstanding Graduate of Shaanxi Province (Top 0.2%)**
 - **Chinese National Scholarship (Top 1%)**
 - **Excellent Undergraduate First-Class Scholarship (Top 1%)**

2023/2024

2024

2023

2022

2020/2021/2022

SKILLS

- **English:** IELTS: 7.0 (L: 8.0; R: 7.5; W: 6.5; S: 6.5), TOFEL: 105, CET-6: 601
 - **Programming:** C/C++, Python (PyTorch, TensorFlow), LaTeX, MATLAB