

# Lebo Wang

Email: lebo.wang@email.ucr.edu

Mobile: 951-786-8620  
<https://lebo-wang.github.io/>

## SKILLS

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- **Machine Learning:** Deep learning on medical images (achieved leading performance on fMRI classification)
- **Programming:** Python and C++ (image processing algorithm design and implementation)

## EDUCATION

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- **University of California, Riverside** Riverside, CA  
*Ph.D. in Department of Electrical and Computer Engineering; GPA: 3.92* Sep 2016 – Jun 2020 (expected)
- **Fudan University** Shanghai, China  
*M.Sc in Microelectronics, School of Information Science and Technology* Sep 2012 – Jul 2015
- **Zhejiang University** Hangzhou, China  
*B.Eng in Department of Information Science and Electronic Engineering* Aug 2008 – Jul 2012

## RESEARCH EXPERIENCE

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- **Spatial Graph Convolution Network for fMRI Data Classification** Aug 2018 - present  
Publication: Connectivity Based Graph Convolution Network (cGCN) for fMRI Data (to be published soon)
  - Spatial based graph convolution network on fMRI data based on Keras and Tensorflow, improving classification accuracy from 70% to 95% with non-Euclidean convolutions on graph-representation data
  - Efficient k-nearest neighbors algorithm for large scale analysis of time-series datasets based on graph theory, which is effective to implement multimodal correlation analysis for graph construction
  - Edge function design of spatial graph convolution networks with improved spatial feature extraction
- **Convolution Neural Network for Interpretable fMRI Data Analysis** Nov 2017 - Aug 2018  
Publication: Application of Convolutional Recurrent Neural Network for Individual Recognition Based on Resting State fMRI Data (Frontiers in Neuroscience 2019, doi: 10.3389/fnins.2019.00434)
  - Convolution Neural Network and Recurrent neural networks on non-Euclidean fMRI data, achieving improved accuracy from 94% to 98% with spatiotemporal features on large scale time-series analysis
  - Interpretable visualization based on convolutional models, including the saliency region extraction with soft-attention mechanism, input occlusion, guided back-propagation and activation map
- **Fault Tolerant Sparse LU Factorization on CPU/GPU Platforms** Oct 2016 – Jun 2017
  - Achieved task graph scheduling and parallelism prediction based on dependency graph and breadth-first search for Sparse LU matrix factorization on hybrid CPU/GPU platform with C++ and CUDA
  - Implemented low-overhead (<1%) algorithm-based fault tolerance algorithm for sparse LU factorization
- **Deep Learning for Images, Time Series and Reinforcement Learning** Mar 2016 - Sep 2016
  - Implemented CNNs for image classification, recurrent neural networks (LSTM and GRU) for time series modeling and unsupervised learning with Python from scratch (Stanford CS231n course)
  - Implementation of Q-learning for the OpenAI Gym on Pytorch (Deepmind reinforcement learning course)

## INTERNSHIP

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- **Lam Research** Jun 2017 – Sep 2017
  - Dimension reduction based on denoising stacked autoencoder for high-dimensional data on Tensorflow
  - Forward Variable Selection for abnormal detection based on bivariate and multivariate analysis, and nonlinear kernel extension for Forward Variable Selection with scikit-learn