Zhenzhen Li

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EDUCATION

Ph.D. in Applied math

Hong Kong University
of Science and Technology
Nov 2020 | Hong Kong
GPA: 4.00/4.00

B.S in Applied math

Sichuan University
Jun 2015 | Chengdu, China
GPA: 3.84/4.00, ranking: 1/120+

SKILLS

-Python - Matlab - C++ - SQL
- Git - Numpy - Pandas - Pytorch
- SciPy - ScikitLearn - NLTK
- Tensorflow - Keras - Colab
- Linux - R - HTML - SAS

LINKS

Github: gitipanda
LinkedIn: Zhenzhen Li
Website: lizhenzhen.org

AWARDS

2015-2019
- Hong Kong Ph.D. Fellowship
2016, 2018
- Hsieh Best Teaching Assistant
2013, 2014
- Meritorious Winners, First-class awards nationwide and globally in Mathematical Modeling Contest
2011, 2013, 2014
- National scholarship

PUBLICATION

IEEE trans. on Information Theory
SIAM on Data Science
Click to see full publications

TALKS

SIAM Conference on Computational Science and Engineering 2020
Caltech, Computing and Mahtematical Science 2019
International Congress on Industrial and Applied Mathematics 2019

EXPERIENCE

Carnegie Mellon University | 2022 - Now

Researcher in ECE

California Institute of Technology | Jun 2020 - Nov 2021

Postdoc fellow in CMS

- Designed and explored randomized first-order schemes in non-convex optimization with theoretical guarantee
- Developed a novel algorithm for robust PCA via subgradient descent method, can be used to video background subtraction
- Achieved at least 20% faster speed compared to prior methods, including convex relaxation, GD-based method, AltProj and AccAltProj
- Analysed empirical risk for pre-trained deep learning models and probabilistic properties of feature transfer learning

Tencent | May 2017 - Jan 2018

Researcher, Wechat laboratory

- Responsible for solving real-time video denoising and compression problems, especially in the insufficient light scenario
- Played a major role in real-world problem modeling, algorithm design, simulation and development of a C++ package
- Utilized wavelet transformed features to build a novel noise level detection and used dictionary learning to get an adaptive encoder
- Achieved real-time and production-level solutions (<1/100s/frame) for the WeChat video calling that are running billions of times per day

ICERM, Brown University | 2016 summer

Summer Researcher

- Managed to utilize two million tweets to interpret people's attitudes on the social media platform after the Baltimore riots
- Vectorized data via bag of words, use nonnegative matrix factorization to model the topic learning, interpreted and tracked different topics
- Responsible for solving the NMF problem via an alternating nonnegative least square method
- Collaborated cross-functionally with various background researchers and hands on experiences in Python

Huaxi Futures Company | 2014 summer

Summer Internship

- Developed trading models and algorithms in MATLAB for HuShen300 and ShangZheng50 index futures trading
- Succeeded to be selected as one of the only two models contributed to the production-level trading models

Mathematical Contest in Modelling | 2012 - 2015

- Proficient with linear/nonlinear, regularized regression, kNN, decision tree, random forest, heuristic algorithms (cellular automata, simulated annealing, ant colony optimization), neural network, Fourier and wavelet transform, K-means clustering, ANOVA, linear discriminant analysis, etc