Joe Cai

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EDUCATION

UNIVERSITY OF WISCONSIN-MADISON
MS in Computer Sciences
Expected May 2016 | Madison, WI
College of Letters & Science
Cum. GPA: N/A

ZHEJIANG UNIVERSITY
BS in Mathematics
Grad. July 2013 | Hangzhou, Zhejiang
Specialized in Applied Math and Statistics
College of Science
Ranking (1st / 120)
Cum. GPA: 3.96 / 4.0
Major GPA: 4.0 / 4.0

COURSEWORK

GRADUATE
Introduction to Algorithms (ongoing)
Advanced Algorithms (ongoing)
Contest-level Programming (ongoing)

UNDERGRADUATE
Database Management Systems
Data Structure and Algorithms
Object-Oriented Programming
Optimization Algorithms
Numerical Analysis
Probability Theory
Mathematical Statistics
Stochastic Processes
Time-series Analysis

SKILLS

PROGRAMMING
Over 5000 lines:
C/C++
Over 1000 lines:
Java • LATEX • Matlab
Familiar:
Python • SQL

LANGUAGES

Native
Mandarin • Cantonese
Working Proficiency
English
Basics
Japanese

RESEARCH

MULTIMEDIA LAB, CHINESE ACADEMY OF SCIENCES AND THE CHINESE UNIVERSITY OF HONG KONG | Research Assistant
July 2013 – July 2014 | Shenzhen, Guangdong, China
- Worked with Limin Wang, Xiaojiang Peng and Prof. Yu Qiao to apply machine learning on video data analysis.
- Created the Multi-View Super Vector (MVSV), an algorithm which fuses feature descriptors extracted from different sources to classify human actions from large video databases HMDB51 and UCF101 (13000+ videos).
- Coupled with the classifier Supporting Vector Machine (SVM), the algorithm achieves the state-of-the-art performance in 2013.
- The work is published by one of the top conferences in computer vision area CVPR'14.

BIO-X LAB, ZHEJIANG UNIVERSITY | Research Assistant
Mar 2012 – May 2013 | Hangzhou, Zhejiang, China
- Worked with Zaixing Yang and Prof. Jianlan Wu to conduct computational simulation on the aggregation process of amyloid proteins in urea solution, aiming to aid Biology and Pharmacy research.
- This is the first computational experiment that reveals the existence of a local maximal amyloid protein aggregation in urea solution via molecular dynamics trajectories data analysis.
- The work is published in The Journal of Physical Chemistry, B Part and Communication in Theorectical Physics.

PROJECTS

MATHEMATICS TOOLKIT | C++
Mar 2012 | Course Project of Object-Oriented Programming
- Designed and built a light-weight toolkit to support commonly used mathematical operations among engineering and applied mathematics students.
- Implemented components for matrix operations, finding root and extreme values of functions, numerical differentiation, integration and solving system of linear equations.

HUMAN ACTION RECOGNITION SYSTEM | Matlab
Aug 2013 | Research Prototype
- Applied machine learning on video data analysis
- Worked with Limin Wang and Xiaojiang Peng to redesign action recognition system, aiming to improve its performance.
- Implemented components for modeling features and extracting vector representation, which are the cores of recognition systems.

AWARDS

Year	Ranking	Award
2014	Ranking	ChaLearn Looking at People Challenge (ECCV'14 Workshop)
	1st/2	Track 1 : Human Pose Recovery
	1st/6	Track 2 : Action/Interaction Recognition
	4th/17	Track 3 : Gesture Recognition
2013	1st/16	THUMOS Action Recognition Challenge (ICCV'13 Workshop)
2012	National	National Scholarship (Top 2% Students in China)
2011	National	National Scholarship (Top 2% Students in China)