# Junhao **Hua**

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# **Machine Learning Engineer**

**Bio.** I am currently a 4th-year PhD Student at College of ISEE, Zhejiang University, China, working with Chunguang Li on Variational Bayesian Algorithms and their applications in Distributed Systems.

Research interests. My Ph.D research work covers a range of issues: variational Bayesian inference, stochastic/distributed optimization, probabilistic graphical models, transfer learning, multitask learning and sensor networks. Currently, I am interesting in varies approaches to deep learning (CNN, GAN, Deep Bayesian Learning, etc.) and their applications to computer vision (image processing, video analysis, etc.).

## Education

Sep 2013 - PhD Candidate in Circuits and Systems, Zhejiang University (ZJU), Hangzhou

Jun 2018 (expected) Center for Statistical Information and Image Processing (SI<sup>2</sup>P)

Advisor: Prof. Chunguang Li

**GPA**: 4.1/5.0

Sep 2009 – Jun 2013 Bachelor of Engineering, Zhejiang University of Technology (ZJUT), Hangzhou

Double Majors in Computer Science & Automation

Advisor:Prof. Shenyong Chen GPA: 3.78/5.0 | Rank: 2/58

### **Publications**

**Junhao Hua**, Chunguang Li, "Distributed Robust Kalman Filtering By Variational Bayesian Approximations," in preparation. **Junhao Hua**, Chunguang Li, "Distributed Jointly Sparse Bayesian Learning with Quantized Communication," submitted to *IEEE Transactions on Cybernetics*.

**Junhao Hua**, Chunguang Li, and Hui-Liang Shen, "Distributed learning of predictive structures from multiple tasks over networks," *IEEE Transactions on Industrial Electronics* (**ZJU-TOP100, SCI**), to be published, doi: 10.1109/TIE.2016.2588463.

**Junhao Hua**, Chunguang Li, "Distributed variational Bayesian algorithms over sensor networks," *IEEE Transactions on Signal Processing* (**TOP SCI**), vol.64, no.3, pp.783–798, Feb 2016.

## Skills

Programming Skills: C/C++, Matlab, LTFX, Python, Java, Git.

Machine Learning: master in Variational Bayes, Distributed Algorithms, Probablistic graphical models.

familiar with most statistical machine learning/signal processing algorithms/techqiues.

familiar with (convex) optimization theory, matrix theory.

**Computer Vision:** have a certain understanding of image processing (segmentation, classification, etc.), video

analysis (object recogintion, tracking, etc.).

Qualification Certificates: Database technology (3-level), Network engineer (mid-class), Software engineer (mid-class).

# **Projects & Experiences**

## May 2015

## Computer vision and image processing, ZJU , C/Matlab/Python

Oct 2013

Object Recognition based on SIFT feature implemented by Matlab mixed with C. Recommender Systems based on latent factor models and matrix factorization. Implementation of Image Seamless Editing by solving Poisson equations. Image Denoising based on non-linear anistropic diffusion techniques.

: sift, MFResys, PoissonImageEditing, ImageDenoising.

Object Recognition | Image Processing | Recommender Systems | Python

#### Apr 2014

#### Action/Behavior Recognition in Videos, ZJU, Matlab

Feb 2014

Extract the spatio-temporal features and obtain "Bag of words" representation by clustering (k-means) the extracted features;

Infer the posterior by pLSA/LDA (unsupervised Learning) or by simple classfications (KNN, SVM); Propose a simple method called 'voting' to achieve multiple actions recognition task.

: github.com/huajh/action recognition

Action Recoginition | Machine Learning | Clustering | LDA | "Bag of Words" Representation

#### Jul 2012

#### Member of project team, Institute of intelligent systems, ZJUT

May 2011

Oct 2011-May 2012, write a paper *Traffic routing algorithm based on the spatial complex networks*;

May-Sep 2011, work on the project: *Motion Sensing PPT based on Kinect* | *Programmer*.

complex networks kinect C#

### Dec 2011 Oct 2011

### Tiny Software development, ZJUT, C/C++/JAVA

Oct-Dec 2011, *Online Works Show Platform* | *Leader*. I designed and implemented a lightweight relational object JDBC package, which is used for the programming of the server. Got the 2<sup>nd</sup> place of the contest judged by the TaoBao UED. : github.com/huajh/showplatform

Nov 2011, *Unix File System* | *Independent developer*. The system is implemented by the C/C++. It has basic shell commands, well performed memory management, as well as the users management, and it supports parallel operation.: github.com/huajh/unix\_file\_sys

JAVA | Unix | software development | Database | Sql Server

# Languages

English: Reading CET-4:502 Listening CET-6:478

Speaking

## Honors & Awards

Fall 2016 National Scholarship for Graduate Students of Zhejiang University (¥30,000).

Fall 2016 Outstanding graduate student of Zhejiang University.

Spring 2013 Outstanding undergraduate student of Zhejiang University of Technology (ZJUT).

2010 - 2012 Scholarship and Merit Student of ZJUT(1st-class (<5%), 1 time; 2nd-class (<10%), 2 times).

2011 & 2012 First-class Mathematical modeling Contest of ZJUT. (<5%, 2 times)

Fall 2011 Second prize of National Mathematical Contest in Modeling (<6.5%).

Fall 2010 First prize of National college students Mathematical Contest (non-math) in Zhejiang (<3%).

### Interests

**Sports:** Basketball, Football, Climbing, Extreme sports, Wilderness survival.

Arts: Photography, Painting, Movies.

Misc: Traveling, Quantitative investment.

(last update: 13 Apr. 2017)