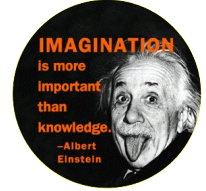


# Junhao Hua

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## Machine Learning Engineer

**Bio.** I am currently a 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 various approaches to deep learning (CNN, GAN, Deep Bayesian Learning, etc.) and their applications to computer vision (image processing, video analysis, etc.).

## Education

Sep 2013 – Jun 2018 (expected)	<b>PhD Candidate</b> in Circuits and Systems, <i>Zhejiang University</i> (ZJU), Hangzhou Center for Statistical Information and Image Processing (SI <sup>2</sup> P) <i>Advisor : Prof. Chunguang Li</i> GPA : 4.1/5.0
Sep 2009 – Jun 2013	<b>Bachelor of Engineering</b> , <i>Zhejiang University of Technology</i> (ZJUT), Hangzhou Double Majors in Computer Science & Automation <i>Advisor : Prof. Shenyong Chen</i> 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,  $\LaTeX$ , Python, Java, Git.

**Machine Learning :** *master in* **Variational Bayes, Distributed Algorithms, Probabilistic graphical models.**  
*familiar with* most statistical machine learning/signal processing algorithms/techniques.  
*familiar with* (convex) optimization theory, matrix theory.

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

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

## Projects & Experiences

May 2015	<b>Computer vision and image processing, ZJU , C/Matlab/Python</b>
Oct 2013	<ul style="list-style-type: none"><li>➢ <i>Object Recognition</i> based on SIFT feature implemented by Matlab mixed with C.</li><li>➢ <i>Recommender Systems</i> based on latent factor models and matrix factorization.</li><li>➢ Implementation of <i>Image Seamless Editing</i> by solving Poisson equations.</li><li>➢ <i>Image Denoising</i> based on non-linear anisotropic diffusion techniques.</li><li>➢ 📄 : <a href="#">sift</a>, <a href="#">MFRsys</a>, <a href="#">PoissonImageEditing</a>, <a href="#">ImageDenoising</a>.</li></ul>

Object Recognition   Image Processing   Recommender Systems   Python

Apr 2014 Feb 2014	<b>Action/Behavior Recognition in Videos, ZJU, Matlab</b> <ul style="list-style-type: none"> <li>&gt; Extract the spatio-temporal features and obtain "Bag of words" representation by clustering (k-means) the extracted features ;</li> <li>&gt; Infer the posterior by pLSA/LDA (unsupervised Learning) or by simple classifications (KNN, SVM) ;</li> <li>&gt; Propose a simple method called 'voting' to achieve multiple actions recognition task.</li> <li>&gt; 📄: <a href="https://github.com/huajh/action_recognition">github.com/huajh/action_recognition</a></li> </ul> <span>Action Recognition</span> <span>Machine Learning</span> <span>Clustering</span> <span>LDA</span> <span>"Bag of Words" Representation</span>
May 2013 Dec 2012	<b>Brain MR image segmentation, ZJUT, Bachelor Thesis</b> <ul style="list-style-type: none"> <li>&gt; Apply the GMM, student-t mixture model, and Dirichlet process based infinite mixture model to the brain MR image clustering problem ;</li> <li>&gt; Derive the detail variational Bayesian inference process.</li> <li>&gt; Improve these three algorithms by using laplacian graph (manifold learning) ;</li> <li>&gt; 📄: <a href="https://github.com/huajh/variational_bayesian_clusterings">github.com/huajh/variational_bayesian_clusterings</a></li> </ul> <span>Mixture Model</span> <span>Clustering</span> <span>Dirichlet Process</span> <span>Variational Bayes</span> <span>Manifold Learning</span>
Nov 2012 Jul 2012	<b>C/C++ Engineer Internship, R&amp;D, State Street (Hangzhou), China</b> <ul style="list-style-type: none"> <li>&gt; Responsible for the maintenance and development of Princeton Financial Systems.</li> <li>&gt; As well as in charge of improving the performance of the system by integrating new technologies.</li> </ul> <span>C/C++ programming</span> <span>C performance optimization</span> <span>portfolio</span>
Jul 2012 May 2011	<b>Member of project team, Institute of intelligent systems, ZJUT</b> <ul style="list-style-type: none"> <li>&gt; Oct 2011-May 2012, write a paper <i>Traffic routing algorithm based on the spatial complex networks</i> ;</li> <li>&gt; May-Sep 2011, work on the project : <i>Motion Sensing PPT based on Kinect   Programmer.</i></li> </ul> <span>complex networks</span> <span>kinect</span> <span>C#</span>
Dec 2011 Oct 2011	<b>Tiny Software development, ZJUT, C/C++/JAVA</b> <ul style="list-style-type: none"> <li>&gt; Oct-Dec 2011, <i>Online Works Show Platform   Leader.</i> 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. 📄: <a href="https://github.com/huajh/showplatform">github.com/huajh/showplatform</a></li> <li>&gt; Nov 2011, <i>Unix File System   Independent developer.</i> 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. 📄: <a href="https://github.com/huajh/unix_file_sys">github.com/huajh/unix_file_sys</a></li> </ul> <span>JAVA</span> <span>Unix</span> <span>software development</span> <span>Database</span> <span>Sql Server</span>

## 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)