

Junhao Hua

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📅 2 Feb 1991, Longyou, Zhejiang, China



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)	PhD Candidate in Circuits and Systems, <i>Zhejiang University</i> (ZJU), Hangzhou Center for Statistical Information and Image Processing (SI ² P) <i>Advisor : Prof. Chunguang Li</i> GPA : 4.1/5.0
Sep 2009 – Jun 2013	Bachelor of Engineering , <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	Computer vision and image processing, ZJU , C/Matlab/Python
Oct 2013	<ul style="list-style-type: none">➢ <i>Object Recognition</i> based on SIFT feature implemented by Matlab mixed with C.➢ <i>Recommender Systems</i> based on latent factor models and matrix factorization.➢ Implementation of <i>Image Seamless Editing</i> by solving Poisson equations.➢ <i>Image Denoising</i> based on non-linear anisotropic diffusion techniques.➢ 📄: sift, MFRsys, PoissonImageEditing, ImageDenoising.

Object Recognition Image Processing Recommender Systems Python

Apr 2014 Feb 2014	Action/Behavior Recognition in Videos, ZJU, Matlab <ul style="list-style-type: none"> ➢ 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 classifications (KNN, SVM) ; ➢ Propose a simple method called 'voting' to achieve multiple actions recognition task. ➢ 📄: github.com/huajh/action_recognition <div> Action Recognition Machine Learning Clustering LDA "Bag of Words" Representation </div>
May 2013 Dec 2012	Brain MR image segmentation, ZJUT, Bachelor Thesis <ul style="list-style-type: none"> ➢ Apply the GMM, student-t mixture model, and Dirichlet process based infinite mixture model to the brain MR image clustering problem ; ➢ Derive the detail variational Bayesian inference process. ➢ Improve these three algorithms by using laplacian graph (manifold learning) ; ➢ 📄: github.com/huajh/variational_bayesian_clusterings <div> Mixture Model Clustering Dirichlet Process Variational Bayes Manifold Learning </div>
Nov 2012 Jul 2012	C/C++ Engineer Internship, R&D, State Street (Hangzhou), China <ul style="list-style-type: none"> ➢ Responsible for the maintenance and development of Princeton Financial Systems. ➢ As well as in charge of improving the performance of the system by integrating new technologies. <div> C/C++ programming C performance optimization portfolio </div>
Jul 2012 May 2011	Member of project team, Institute of intelligent systems, ZJUT <ul style="list-style-type: none"> ➢ Oct 2011-May 2012, write a paper <i>Traffic routing algorithm based on the spatial complex networks</i> ; ➢ May-Sep 2011, work on the project : <i>Motion Sensing PPT based on Kinect Programmer.</i> <div> complex networks kinect C# </div>
Dec 2011 Oct 2011	Tiny Software development, ZJUT, C/C++/JAVA <ul style="list-style-type: none"> ➢ 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 2nd place of the contest judged by the TaoBao UED. 📄: github.com/huajh/showplatform ➢ 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. 📄: github.com/huajh/unix_file_sys <div> JAVA Unix software development Database Sql Server </div>

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.