

Junhao Hua

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📅 2 Feb 1991, Longyou, Zhejiang, China



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 variety of approaches for deep learning (CNN, GAN, Bayesian Deep Learning, etc.) and their applications to computer vision (image processing, video analysis, etc.).

🎓 Education

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|--------------------------------|--|
| 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

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- > **Junhao Hua**, Chunguang Li, “Distributed Variational Bayesian Algorithms for Robust Kalman Filtering in Sensor Networks,” submitted to *IEEE Transactions on Signal and Information Processing over Networks*.
 - > **Junhao Hua**, Chunguang Li, “Distributed Variational Bayesian Algorithms for Extended Object Tracking,” submitted to *IEEE Transactions on Aerospace and Electronic Systems*.
 - > **Junhao Hua**, Chunguang Li, “Distributed Jointly Sparse Bayesian Learning with Quantized Communication,” *IEEE Transactions on Signal and Information Processing over Networks*, accepted.
 - > **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, IF=7.2**), vol. 64, no. 5, pp. 4246–4256, May 2017.
 - > **Junhao Hua**, Chunguang Li, “Distributed variational Bayesian algorithms over sensor networks,” *IEEE Transactions on Signal Processing* (**TOP SCI, IF=4.3**), vol. 64, no. 3, pp. 783–798, Feb 2016.

☰ Skills

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|-------------------------------------|---|
| Programming Skills : | C/C++ , Matlab, \LaTeX , Python, Java, Git. |
| Machine Learning : | <i>master in</i> Variational Bayes, Distributed Algorithms, Probablistic graphical models.
<i>familiar with</i> most statistical machine learning/signal processing algorithms/techqies.
<i>familiar with</i> (convex) optimization theory, matrix theory. |
| Computer Vision : | <i>have a certain understanding of</i> 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

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|----------|---|
| May 2015 | Computer vision and image processing, ZJU , C/Matlab/Python <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 anistropic diffusion techniques.> 🌐: sift, MFResys, PoissonImageEditing, ImageDenoising. |
| Oct 2013 | |
- [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 classifications (KNN, SVM) ;
 - > Propose a simple method called 'voting' to achieve multiple actions recognition task.
 - >  : github.com/huajh/action_recognition
- Action Recognition Machine Learning Clustering LDA "Bag of Words" Representation
- May 2013 | Brain MR image segmentation, ZJUT, Bachelor Thesis
Dec 2012
- > 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
- Mixture Model Clustering Dirichlet Process Variational Bayes Manifold Learning
- Nov 2012 | C/C++ Engineer Internship, R&D, State Street (Hangzhou), China
Jul 2012
- > 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.
- C/C++ programming C performance optimization portfolio
- 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 | Tiny Software development, ZJUT, C/C++/JAVA
Oct 2011
- > 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 2nd 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.