Junhao **Hua**

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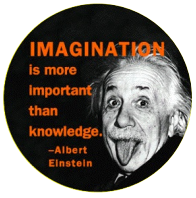

Machine Learning Engineer

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 – Jun 2018 (expected)
PhD Candidate in Circuits and Systems, *Zhejiang University* (ZJU), Hangzhou
Center for Statistical Information and Image Processing (SI^{2}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, LaTeX, 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 – Oct 2013
Computer vision and image processing, ZJU , C/Matlab/Python

- *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 – Feb 2014 | **Action/Behavior Recognition in Videos, ZJU, Matlab**

- Extract the spatio-temporal features and obtain "Bag of words" represetation 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 recogintion task.
- : github.com/huajh/action_recognition

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

May 2013 – Dec 2012 | **Brain MR image segmentation, ZJUT, Bachelor Thesis**

- Apply the GMM, student-t mixture model, and Dirichlet process based infinite mixture modelto 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 Learnig

Nov 2012 – Jul 2012 | **C/C++ Engineer Internship, R&D, State Street (Hangzhou), China**

- 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 – May 2011 | **Member of project team, Institute of intelligent systems, ZJUT**

- 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 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.

(last update : 13 Apr. 2017)