SONGPENG ZU

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EDUCATION

Tsinghua University *2011.09 - Present*
PhD Candidate, Bioinformatics Laboratory, Department of Automation, Tsinghua University
Graduate Major GPA: 90.84/100

- Applied Stochastic Process
- Real Analysis, Basic Functional Analysis
- Pattern Recognition, Probabilistic Graph
- Applied Abstract Algebra
- Design of Bioinformatics Algorithms
- Probability and Statistics in High Dimensions

Tsinghua University *2007.09 - 2011.07*
Bachelor, School of Life Science, Tsinghua University Undergraduate Major GPA: 86.32/100

BASIC SKILLS

Basic Machine Learning
Have the basic understanding on matchine learning.
- Basic kernel methd, support vector machine, and Gauss process
- Bacic decision tree model, random forest and the Boosting method
- Basic regression analysis, such as ridge regression, LASSO, and generalized linear model
- Basic unsupervised learning, such as K-means, pricinple componetnt analysis
- Basic probabiliscitc graph model, such as Bayesian network, markov random field, and conditiional random field
- Basic neutral network model, restricted Boltzman machine, and deep learning model

Basic Statistical Inference
Have the basic training on statistical inferrence.
- Basic Monte Carlo strategies, such rejection sampling, Gibbs samplings, and Hamilton Monte Carlo
- Basic Bayesian statistics, such as Bayesian regression, and hierarchical Bayesian model
- Basic statistical strategies, such as maximum likelihood, hypothesis testing, and EM algorithm

Basic Convex Optimization
Have the basic understanding on convex optimization.
- Basic understanding on augumented lagrange method
- Basic optimization strategies, such as Newtorn or quasi Newton method, Genetic algorithm, and simulation annealing
- Basic understanding on proximal minimization, such as altenating dierection method of multipliers

RESEARCH EXPERIENCE

Department of Automation, Tsinghua University *2011.07 - Present*
Major on predicting compound-protein interactions from the machine learning perspective.
- Predicting chemogenomic features from drug-target interactions by EM algorithm.
- Predicting drug-target interactions by a graph partition model.
- Quantitatively predicting on compound-protein interactions based on transfer learning.

Department of Statistics, Harvard University *2014.03 - 2014.09*
cis-eQTLs detection on GTEx Project.
- Using the Bayesian Nonparametric tests via sliced inversed modeling to detect the non-linear relationships.

Internship in Baidu Inc, Beijing, China *2014.01 - 2014.02*
- Relating the influenza epidemics with the query data in China.
- Studying the AIDS risks in different regions with the query data in China.

Internship in Disease Control and Prevention Center, Liuzhou, China *2013.07 - 2013.08*

- Studying the AIDS subtypes in Liuzhou by the DNA sequence data.
- Helping them to construct the methods on sequence analysis of AIDS.

PUBLICATION

Zu S., Chen T, Li S. *Global optimization-based inference of chemogenomic features from drug-target interactions.* Bioinformatics, 2015. (published online)

WORK EXPERIENCE

- TA of Introduction to Systems Biology for undergraduate students *2014.09 - 2015.01*
- TA of Probabilistic Graphical Models for graduate students *2013.09 - 2014.01*
- Undergraduate Affair Counselor (for scholarship and financial aid assessment) *2011.08 - 2013.01*
- The volunteer of 2008 Beijing Olympic Games *2008.08*

AWARDS

- Tsinghua Scholarship for Overseas Graduate Studies *2014*
- Tsinghua Excellent Undergraduate Affair Counselor *2013*
- Tsinghua Zhongying Tang Scholarship *2008, 2009, 2010*

TECHNIQUES AND INTERESTS

Computer Languages	R, Python, Perl, C/C++, Shell
Tools	Emacs, Vim, Latex
Interests	The international ballroom dance, Football