

Hao XUE

(+01)6172303339 hao_xue@hsph.harvard.edu

EDUCATION

Mathematical Sciences, Xi'an Jiaotong-Liverpool University (XJTLU)	Aug. 2015- Sept. 2019
BSc with Honours in Applied Mathematics (First Class)	GPA:3.89
Harvard Chan School of Public Health (HSPH)	Sept. 2019- present
SM in Biostatistics (80 cr)	current GPA: 3.87

RESEARCH EXPERIENCES

Asymmetric Word Embeddings	Mar. 2020 - present
Independent study, HSPH	

Advisors: Prof. Junwei Lu & Prof. Tianxi Cai, HSPH

- Construct bidirectional word embedding and solve the resulting optimization problem with Accelerated Gradient Descent

High Throughput RNA Methylation Data Analysis	Sept. 2018 – Sept. 2019
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Final Year Project, XJTLU

Advisors: Prof. Jia Meng & Dr. Jionglong Su, XJTLU

- Applied Elastic Net, Logistic regression, Support Vector Machine and Random Forest to study tissue specific relationship between RNA m⁶A methylation (using MeRIP-Seq) and gene expression level (using RNA-Seq)

Medical Language Machine Translation	July 2018 – Aug. 2018
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Summer Intern, HSPH

Supervisors: Prof. Xu Shi, University of Michigan School of Public Health & Prof. Tianxi Cai, HSPH

- Developed R scripts that can perform Canonical Correlation Analysis (CCA), regularized CCA, Kernelized CCA and Procruste Orthogonal
- Employed methods mentioned above to translate Chinese medical terms into English and Concept Unique Identifiers given corresponding word vectors, our current accuracy ties with the latest best performer
- Preprocessed text files used as lexicon and presented translation results with Python

An Intelligent System for Tongue Diagnosis	June 2016- Sept. 2016
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Summer Undergraduate Research Fellow (SURF), XJTLU

Supervisor: Dr. Jionglong Su

- Developed an automatic approach in MATLAB that can extract chromatic features of tongue images in different color spaces and quantify texture information of each tongue image by Grap-Tone Spatial-Dependence Matrix
- Developed algorithms that can classify tongue images based on principle of Traditional Chinese Medicine by Support Vector Machine, Back-Propagation Neural Network, Naïve Bayes Classifier and Self-Organizing Map
- Presented our research in SURF poster competition and was awarded as the Mathematics Cluster Winner out of nine teams

PUBLICATION

Xue H., Wei Z., Chen K., Tang Y., Wu X., Su J. and Meng J. (2020). Prediction of RNA methylation status from gene expression data using classification and regression methods. Accepted: *Evolutionary Bioinformatics*.

AWARDS

Academic Excellence Award (top 5%), XJTLU	2017
Outstanding Winner of the Tenth Mathematical Contest in Modeling of XJTLU (top2)	2017
Meritorious Winner of Interdisciplinary Contest in Modeling, COMAP	2018
Mathematics Cluster Winner of SURF poster competition, XJTLU	2016

SKILLS

R, Python, MATLAB, Java, LaTeX and Microsoft Office