

Nan Xiao

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Education

2015 –	Ph.D. student (Human Genetics), University of Chicago.	Chicago, IL, U.S.
2012 – 2015	Master student (Statistics), Central South University.	Changsha, China
2008 – 2012	Bachelor of Science (Statistics), Central South University.	Changsha, China

Work experience

2015	Intern. Seven Bridges Genomics, Inc. Advisor: Tengfei Yin.	Cambridge, MA, U.S.
	<ul style="list-style-type: none">• Developed R/Bioconductor package <i>sbgr</i>: R client for SBG Platform / NCI Cancer Genomics Cloud Platform API; the first shipped official language binding for SBG API.• Developed R package <i>liftr</i>: dockerizing R Markdown documents with support for Rabix. First enabled OS-level reproducibility for bioinformatics & statistical data analysis.• Presented the packages at the BioC 2015 conference (workshop session and poster session), Fred Hutchinson Cancer Research Center, Seattle, WA.	

Publications

Journal articles

2015	Nan Xiao and Q.-S. Xu (2015). “Multi-step adaptive elastic-net: reducing false positives in high-dimensional variable selection”. <i>Journal of Statistical Computation and Simulation</i> . doi:10.1080/00949655.2015.1016944	
2015	Nan Xiao , D.-S. Cao, M.-F. Zhu, and Q.-S. Xu (2015). “protr/ProtrWeb: R package and web server for generating various numerical representation schemes of protein sequence”. <i>Bioinformatics</i> . doi:10.1093/bioinformatics/btv042	
2014	D.-S. Cao*, Nan Xiao *, Q.-S. Xu and A. F. Chen (2014). “Rcpi: R/Bioconductor package to generate various descriptors of proteins, compounds, and their interactions”, <i>Bioinformatics</i> . *Joint first authors. doi:10.1093/bioinformatics/btu624	
2015	D.-S. Cao, Nan Xiao , Y.-J. Li, W.-B. Zeng, Y.-Z. Liang, A.-P. Lu, Q.-S. Xu, A. F. Chen (2015). “Integrating multiple evidence sources to predict adverse drug reactions based on systems pharmacology model”. <i>CPT: Pharmacometrics & Systems Pharmacology</i> . doi:10.1002/psp4.12002	
2015	J.-B. Wang, D.-S. Cao, M.-F. Zhu, Y.-H. Yun, Nan Xiao , Y.-Z. Liang (2015). “In silico evaluation of logD _{7.4} and comparison with other prediction methods”. <i>Journal of Chemometrics</i> . doi:10.1002/cem.2718	

- 2015 L. Shen, D.-S. Cao, Q.-S. Xu, X. Huang, Nan Xiao, Y.-Z. Liang (2015). “A novel local manifold-ranking based k -NN for modeling the regression between bioactivity and molecular descriptors”. *Chemometrics and Intelligent Laboratory Systems*.
doi:10.1016/j.chemolab.2015.12.005

Book translations

- 2015 Max Kuhn and Kjell Johnson (2015). *Applied Predictive Modeling*. (En-Chi Ma, Yi-Xuan Qiu, Nan Xiao, Hui Lin, & Vivian Zhang, Trans.). China Machine Press (Original work published in 2013). In press.
- 2014 Winston Chang (2014). *R Graphics Cookbook*. (Nan Xiao, Yi-Shuo Deng, Tai-Yun Wei, & Yi-Xuan Qiu, Trans.). Posts and Telecom Press (Original work published in 2013).
- 2013 Hadley Wickham (2013). *ggplot2: Elegant Graphics for Data Analysis*. (Tai-Yun Wei, Yi-Xuan Qiu, Nan Xiao, Tao Gao, & Wei-Cheng Zhu, Trans.). Xi'an Jiaotong University Press (Original work published in 2010).
- 2013 Robert Kabacoff (2013). *R in Action: Data Analysis and Graphics with R*. (Tao Gao, Nan Xiao, & Gang Chen, Trans.). Posts and Telecom Press (Original work published in 2011). [Sold 27,500 copies by December 2014.]

Conference presentations & posters

- 2015 **Introduction to Reproducible Research in Bioinformatics.**
Invited talk. 2015 Bioinformatics Workshop, Center for Research Informatics, University of Chicago. December 3, 2015.
- 2015 Nan Xiao and Tengfei Yin. **liftr: Reproducible Bioinformatics and Statistical Data Analysis with Docker, Rabix, and knitr** (Poster).
BioC 2015, Fred Hutchinson Cancer Research Center, Seattle, WA. July 2015.
- 2015 **liftr & sbgr kickstart** (Workshop with Dan Tenenbaum and Tengfei Yin).
BioC 2015, Fred Hutchinson Cancer Research Center, Seattle, WA. July 2015.
- 2014 **Integrated Pipeline for Systems Pharmacology in R/Bioconductor**
The 7th China R Conference, Renmin University of China, Beijing, China. May 2014.
- 2013 **Web Scraping with R**
The 6th China R Conference, Renmin University of China, Beijing, China. May 2013.
- 2009 **Security Issues and Vulnerabilities of the R Environment**
The 2nd China R Conference, Renmin University of China, Beijing & East China Normal University, Shanghai. December 2009.

Software and web applications

R/Bioconductor packages

hdnom

2015 – R package building nomograms for high-dimensional survival data, with support for model validation, calibration, and comparison. Project website: <http://hdnom.org>. Available from CRAN: <https://cran.r-project.org/package=hdnom>.

liftr

2015 – R package for dockerizing R Markdown documents with support for Rabix in reproducible research. Project website: <http://liftr.me>. Available from CRAN: <https://cran.r-project.org/package=liftr>.

sbgr

2015 – R Client for Seven Bridges Genomics API. Available from Bioconductor: <https://bioconductor.org/packages/sbgr> and GitHub: <https://github.com/road2stat/sbgr>.

Rcpi

2013 – 2014 R/Bioconductor package as a comprehensive molecular informatics platform for systems pharmacology and drug discovery. [Downloaded over 10,000 times by December 2015.] Available from Bioconductor: <https://bioconductor.org/packages/Rcpi>.

protr

2012 – 2014 R package generating various numerical representation schemes of protein sequence for bioinformatics and proteochemometrics research. Available from CRAN: <https://cran.r-project.org/package=protr>.

enpls

2014 R package for ensemble partial least squares regression, a unified framework for feature selection, outlier detection, and ensemble learning. Available from CRAN: <https://cran.r-project.org/package=enpls>.

RECA

2012 – 2014 R package for relevant component analysis (RCA) in supervised distance metric learning and supervised dimensionality reduction. Available from CRAN: <https://cran.r-project.org/package=RECA>.

Web applications

hdnom.io

2015 Web application for building penalized Cox models for high-dimensional data with survival outcomes. The web app streamlined the process of nomogram building, model validation, calibration, comparison, and reproducible report generation. Available at: <http://hdnom.io>. Included in Shiny User Showcase: <https://rstudio.com/products/shiny/shiny-user-showcase/>

Signify

2015 Web application for making your (>0.05) p -values sound significant.
Available at <https://nanx.shinyapps.io/signify>.

ProtrWeb

2013 – 2014 Web application for computing 20 types of protein sequence-derived structural and physicochemical features in bioinformatics. [Over 2,000 users from 40 countries.]
Available at <http://protr.org>.

ImgSVD

2014 Web application for image compression via singular value decomposition. Collaborated with Yihui Xie (RStudio Inc.), Yixuan Qiu (Purdue University), and Tong He (Simon Fraser University). Available at <https://yihui.shinyapps.io/imgsvd>.

TargetNet

2014 Web application for predicting the binding of 623 drug targets for given molecules. Driven by large-scale machine learning modeling of chemogenomics data.
Available at: <http://targetnet.scbdd.com>.

Honors and awards

2014 Best poster award. *Genes and associated environmental factors affecting skin aging in different ethnic groups*. CAS-MPG Partner Institute for Computational Biology Scientific Exchange Meeting, Shanghai. With Miao Zhu Li.

2013 National scholarship for graduate students (5%).
Highest award the government established for graduate students in China.

2013 Outstanding graduate student award (5%). Central South University, Changsha, China.

2011 1st Prize (top 5%) in Hunan Contest District in China Undergraduate Mathematical Contest in Modeling (CUMCM). With Guan-Chun Liu and Tian-Yu Zhao.

2010 Meritorious award (2nd in 1,000+) of Central China Undergraduate Mathematical Contest in Modeling (CCUMCM). With Tao Gao and Chen-Xi Guo.

Professional services

2015 – **Reviewer.** *Journal of Statistical Computation and Simulation*

2014 **Contributing Editor.** *ICSA (International Chinese Statistical Association) Bulletin*

2014 **Organizing Committee Member.** *The 7th China R Conference (Beijing)*. <http://china-r.org>

2013 **Co-Organizer.** *The 6th China R Conference (Beijing)*

2010 – **Editor.** *Capital of Statistics*, <http://cos.name>. Largest online community on statistics in China.

2009 **Volunteer.** *The 2nd China R Conference (Beijing, Shanghai)*

Membership

- 2016 – American Statistical Association (ASA)
- 2015 – International Chinese Statistical Association (ICSA)
- 2015 – American Society of Clinical Oncology (ASCO)

Programming skills

- R/Bioconductor package development (6 years)
- Complex web application development with R/Shiny (4 years)
- Biological data visualization with lattice, ggplot2, Circos, and D3.js (4 years)
- Good knowledge of Docker, PostgreSQL, Git, T_EX and shell programming (4 years)
- Experience of Linux server setup, management and application deployment (4 years)

Research Interests

Statistical machine learning, methods and applications in biomedicine:

- High-dimensional linear models and variable selection
- High-dimensional data integration and network inference
- Systems genetics and translational bioinformatics

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