

# Nan Xiao

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## Education

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

## Publications

### Journal articles

|      |                                                                                                                                                                                                                                                                                                                           |  |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 2015 | <b>Nan Xiao</b> 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 | <b>Nan Xiao</b> , 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*, <b>Nan Xiao</b> *, 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. [Package downloaded over 10,000 times since first release.] doi:10.1093/bioinformatics/btu624 |  |
| 2015 | D.-S. Cao, <b>Nan Xiao</b> , 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 &amp; Systems Pharmacology</i> . doi:10.1002/psp4.12002                     |  |
| 2015 | J.-B. Wang, D.-S. Cao, M.-F. Zhu, Y.-H. Yun, <b>Nan Xiao</b> , Y.-Z. Liang (2015). “In silico evaluation of logD <sub>7.4</sub> and comparison with other prediction methods”. <i>Journal of Chemometrics</i> . doi:10.1002/cem.2718                                                                                      |  |

## 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 7<sup>th</sup> China R Conference, Renmin University of China, Beijing, China. May 2014.
- 2013 **Web Scraping with R**  
The 6<sup>th</sup> China R Conference, Renmin University of China, Beijing, China. May 2013.
- 2009 **Security Issues and Vulnerabilities of the R Environment**  
The 2<sup>nd</sup> 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 Cox models, with support for model validation and calibration. 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, model calibration, and reproducible report generation. Available at: <http://hdnom.io>. Included by 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://protrweb.scbdd.com>.

### 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>.

### 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>.

## 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 *Miaozhu 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 1<sup>st</sup> 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 (2<sup>nd</sup> 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 7<sup>th</sup> China R Conference (Beijing)*. <http://china-r.org>  
2013 **Co-Organizer.** *The 6<sup>th</sup> China R Conference (Beijing)*  
2010 – **Editor.** *Capital of Statistics*, <http://cos.name>. Largest online community on statistics in China.  
2009 **Volunteer.** *The 2<sup>nd</sup> 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 (3 years)
- Good knowledge of Docker, Python, PostgreSQL, T<sub>E</sub>X and shell programming (4 years)

Last revision: December, 2015