Jiang Shu

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Employment

Graduate Research Assistant, Systems Biology and Biomedical Informatics Lab,
Department of Computer Science & Engineering,
University of Nebraska - Lincoln,
January 2014 – present

Graduate Research Assistant, Computational Biology Lab,
Department of Statistics,
University of Nebraska - Lincoln,
May 2012 – December 2013

Data Analyst, Wuhan Katsu World Medical Electronics Technology Ltd.,
Wuhan, China,
June 2007 – September 2009

Education

Ph.D. Computer Science (*Bioinformatics Specialization*), University of Nebraska - Lincoln, 2018 (expected).

Advisor: Dr. Juan Cui
Committee: Drs. Juan Cui, Ashok Samal, Stephen Scott, Etsuko Moriyama

Invited Participant, Open Science Grid Summer School, 2016.

Host Institute: Computer Sciences Department, University of Wisconsin–Madison

M.S. Statistics (*Minor in Computer Science*), University of Nebraska - Lincoln, 2013.

Advisor: Dr. Istvan Ladunga
Committee: Drs. Istvan Ladunga, Kent Eskridge, Peter Revesz
Project: "Statistical ensemble regulation of a large system of genes".

B.S. Mathematics and Applied Mathematics, Huazhong Normal University, *Wuhan, China*, 2007.

Advisor: Dr. Dongfang Zhao
Thesis: "Mathematical analysis of economic cycle in China".

Publications

Peer–Reviewed Journal Publications

1. **Shu J**, Vieira Resende e Silva B, Gao T, Xu Z, and Cui J (2017). Dynamic and modularized microRNA regulation and its implication in human cancers. *Scientific Reports.* doi:10.1038/s41598-017-13470-5.
2. Salas E, **Shu J**, Cserhati M, Weeks D, Ladunga I (2016). Pluralistic and stochastic gene regulation: examples, models and consistent theory. *Nucleic Acids Research.* doi:gkw042v1-gkw042.

3. **Shu J**, Chiang K, Zempleni J, Cui J (2015). Computational characterization of exogenous microRNAs that can be transferred into human circulation. *PLOS ONE.* doi:10.1371/journal.pone.0140587.
4. Chiang K, **Shu J**, Zempleni J, Cui J (2015). Dietary MicroRNA Database (DMD): An archive database and analytic tool for microRNAs in human foods. *PLOS ONE.* doi:10.1371/journal.pone.0128089.

Peer–Reviewed Conference Publication

5. Hakguder Z, Liao C, **Shu J**, Cui J (2017). A New Statistical Model for Genome-Scale MicroRNA Target Prediction. *Bioinformatics and Biomedicine (BIBM)*, 2017 IEEE International Conference on. Accepted.
6. Han J, **Shu J**, Cui J (2016). A new system for human microRNA functional evaluation and network. *Bioinformatics and Biomedicine (BIBM)*, 2016 IEEE International Conference on. doi: 10.1109/BIBM.2016.7822531.
7. **Shu J**, Chiang K, Zhao D, Cui J (2015). Human absorbable microRNA prediction based on an ensemble manifold ranking model. *Bioinformatics and Biomedicine (BIBM)*, 2015 IEEE International Conference on. doi: 10.1109/BIBM.2015.7359697.

Refereed Peer–Reviewed Abstracts

1. Zempleni J, Zhou F, Wu, D, Manca S, Sadri M, Fernando S, Paz H, **Shu J**, Cui J (2017). Bovine milk exosomes and their cargos may regulate metabolism through non-canonical pathways in non-bovine species. *Functional Foods and bioactive compounds in health and disease*, Martirosyan D (ed.), Volume 21:144-145
2. **Shu J**, Chiang K, Cui J (2015). Computational characterization of microRNA-mediated association between obesity and cancer. *Cancer Research*, 75(15 Supplement):234
3. Baier S, Howard K, Cui J, **Shu J**, Zempleni J (2015). MicroRNAs in chicken eggs are bioavailable in healthy adults and can modulate mRNA expression in peripheral blood mononuclear cells. *The FASEB Journal*, 29(1 Supplement):LB322
4. Zempleni J, Howard K, Cui J, **Shu J**, Baier S (2015). Humans absorb dietary microRNAs from chicken eggs, and the postprandial increase of plasma microRNAs includes a microRNA that humans cannot synthesize endogenously. *Journal of Extracellular Vesicles*, 4:27783

Submitted Manuscripts

[#] Co-first authors.

1. Gao T[#], **Shu J**[#], Cui J (2017). A graph-based method for systematic motif discovery based on short nucleotide sequences. *Under revision*.
2. Fratantonio D[#], **Shu J**[#], Howard K, Baier S, Giraud D, Shu J, Cui J, Zempleni J (2017). MicroRNAs from chicken eggs are bioavailable and alter gene expression in peripheral blood mononuclear cells in humans. *Under review*.
3. Leiferman A, **Shu J**, Grove R, Cui J, Adamec J, Zempleni J(2017). A diet defined by its content of bovine milk exosomes and their RNA cargos affects four KEGG pathways but does not amino acid profiles and grip strength in skeletal muscle in C57BL/6 mice. *Under review*.
4. Zhou F, Paz H, **Shu J**, Sadri M, Cui J, Fernando S, Zempleni J (2017). Dietary bovine milk exosomes and their RNA cargos elicit changes in the composition of the intestinal microbiome and the hepatic transcriptome in C57BL/6 Mice. *Under review*.

Honors & Awards

Best Poster Awardee, Poster Competition, Nebraska Center for the Prevention of Obesity Diseases, September 2016.

Fellowship, Open Science Grid Summer School, University of Wisconsin–Madison, July 2016.

Best Poster Awardee, Poster Competition, Nebraska Center for the Prevention of Obesity Diseases, September 2015.

Winning Abstract, NetSciReg'14 - Network Models in Cellular Regulation, June 2014.

Best Poster Awardee, Poster Competition, Nebraska Gateway to Nutrigenomics, June 2014.

Outstanding Staff Award, Wuhan Katsu World Medical Electronics Technology Ltd., 2007, 2008.

Best Internship Group, Huazhong Normal University, 2006.

Selected Conference Talks & Posters

First-author presentations only.

Talk: "MiRDR-OSG: MicroRNA dynamic regulation analysis utilizing open science grid", *Workshop on High Throughput Computing in Bioinformatics and Biomedicine using Open Science Grid, BIBM 2017*, Kansas City, MO, November 13, 2017.

Invited Talk: "A large-scale metagenomic analysis using OSG", *Holland Computing Center User Group Meeting*, Lincoln, NE, April 20, 2017.

Invited Talk: "A large-scale metagenomic analysis using OSG", *Open Science Grid All Hands Meeting 2017*, San Diego, CA, March 7, 2017.

Best Poster Award: "Dynamic and modularized microRNA regulation and its implication in human cancers", *Nebraska Center for the Prevention of Obesity Diseases 2nd Annual Symposium*, Lincoln, NE, September 28, 2016.

Poster: "Dynamic and modularized microRNA regulation and its involvement in human cancer", *International Conference on Intelligent Systems for Molecular Biology*, Orlando, Florida, July 8–12, 2016.

Poster: "Reconstruction and analysis of dynamic microRNA regulation in Cancers", *Nebraska Center for the Prevention of Obesity Diseases 8th Annual Retreat*, Lincoln, NE, April 18, 2016.

Talk: "Human absorbable dietary microRNAs prediction based on an ensemble Manifold ranking model", *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Washington D.C., November 9–12, 2015.

Best Poster Award: "microRNA cooperative regulation in obesity and cancers", *Nebraska Center for the Prevention of Obesity Diseases 1st Annual Symposium*, Lincoln, NE, September 28, 2015.

Poster: "Computational characterization of microRNA-mediated association between obesity and cancer", *American Association for Cancer Research Annual Meeting 2015*, Philadelphia, PA, April 18–22, 2015.

Poster: "Computational characterization of exogenous microRNAs transfer into human circulation", *Nebraska Center for the Prevention of Obesity Diseases 7th Annual Retreat*, Lincoln, NE, March 13, 2015.

Poster: "Complex network mechanisms of transcriptional activation", *International Conference on Intelligent Systems for Molecular Biology*, Boston, MA, July 13–15, 2014.

Best Poster Award: "Dynamic microRNA regulation in human gene network", *Nebraska Gateway to Nutrigenomics 6th Annual Retreat*, Lincoln, NE, June 9, 2014.

Contributed Talk: "Stochastic, large-scale ensembles in the co–regulation network of human genes encoding ribosomal proteins", *NetSciReg'14–Network Models in Cellular Regulation*, Berkeley, CA, June 3, 2014.

Poster: "Ensemble regulation of large gene systems", *International Conference on Functional and Comparative Genomics & Pharmacogenomics*, Chicago, IL, November 12–14 2013.

Poster: "Regulation of ribosomal protein genes in human based on ENCODE experiments", *Systems Biology:*

Networks, Cold Spring Harbor, New York, March 13–16 2013.

Professional Activities

Reviewer for Journals:

PLOS ONE

Scientific Reports

Journal of Bioinformatics and Computational Biology

Reviewer for Conference:

ACM International Conference on Bioinformatics and Computational Biology (ACM–BCB), 2015

Student Council Symposium, Intelligent Systems for Molecular Biology and 16th European Conference on Computational Biology (ISMB/ECCB), 2017

Workshop Organizer:

Co–Organizer, High Throughput Computing in Bioinformatics and Biomedicine using Open Science Grid, IEEE International Conference on Bioinformatics and Biomedicine (BIBM), 2017

Co–Organizer, UNL Bioinformatics Workshop on Microarray and NGS Data Analysis, 2014

Committee Service:

Reviewer, Graduate Travel Awards Program, University of Nebraska - Lincoln, 2017

Organizing Committee, Student Council Symposium, ISMB/ECCB, 2017

Student Speaker Committee, Nebraska Center for the Prevention of Obesity Diseases, 2015

Professional Membership:

Student Member, International Society for Computational Biology (ISCB), 2016 – present

Student Member, Institute of Electrical and Electronics Engineers (IEEE), 2015 – present.

Associate Member, American Association for Cancer Research (AACR), 2014 – present

Student Member, American Statistical Association (ASA), 2012 – present

Skills

Statistical Analysis Software: R, SAS.

Programming Languages: Python, Perl, SQL.

Operating Systems: Unix/Linux, Windows, OS X.

Certificates: SAS Certified Base Programmer, CompTIA Linux+ Certification.

Last updated: January 2, 2018