Kirk Gosik

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PROFILE

As a PhD candidate at the Penn State College of Medicine, my research has focused on high dimensional predictor space data, specifically with model selection and epistatic screening for the purposes of genetic mappings. I have applied the screening and modeling techniques on both theoretical and real datasets in aims to find a more complete understanding of the relationship between the genotypes and phenotypes. Continuing on, my goal would be incorporate a more functional component to this methodology to see how phenotypes vary as a function of time and understanding the genetic and epigenetic components that impact these traits.

EDUCATION

Penn State University, College of Medicine, Public Health Sciences 05/2017
PhD Biostatistics

Penn State University, Eberly College of Science 08/2012
Masters of Applied Statistics

Penn State University, College of Education 12/2008
Bachelor of Science, Major: Secondary Education, Mathematics, Minor: Psychology

RELEVANT WORK EXPERIENCE

Statistical Analyst 08/2012 –Present
Penn State Milton Hershey Medical Center, Hershey, PA
Provide statistical support and analysis for various aspects in the nursing department. Areas of support include quality improvement projects, nursing research and Magnet evidence.

Human Research Technologist
Penn State College of Medicine, Division of Nephrology, Hershey, PA 04/2011 – 08/2012
Managed study on acute kidney injury where I helped with Institutional Review Board submittals, consented patients into the study, collected samples for the study and managed the data. Also, reported the data to the Principal Investigator and did some initial analysis for the study.

Math Teacher/Adjunct Instructor
Harrisburg Area Community College 08/2014 – 12/2014
Cornwall-Lebanon School District, Lebanon, PA 08/2009 – 07/2010
Milton Hershey School, Hershey, PA 01/2009 – 07/2009
Collaborated with other professionals for planning and designing lessons.
Taught courses on Algebra, Geometry and Calculus

ADDITIONAL EXPERIENCE

Wrestling Coach 12/2008 - Present
Lower Dauphin School District, Hummelstown, PA

Patient Safety Companion 10/2010 – 03/2011
Penn State Milton Hershey Medical Center, Hershey, PA

Usher 10/2003 – 09/2012
Hershey Entertainment and Resorts Company, Hershey, PA

SKILLS/STRENGTHS

Experience with many statistical software packages including R and Python
Beginner experience with Matlab, Golang, Javascript, Linux, Git, SQL, C++

RESEARCH INTERESTS

- Statistical Genetics/Genomics/Omics
- Network/Systems Biology
- High Dimensional Data/Big Data
- Machine Learning
- Open Science

PUBLICATIONS

Peer-reviewed articles

Gosik K, Kong L, Chinchilli V, Wu R (2016) iFORM/eQTL: An ultrahigh- dimensional platform for inferring the global genetic architecture of gene transcripts. Briefings in Bioinformatics bbw014. [Epub ahead of print].

Gosik K, Sun LD, Chinchilli VM, Wu R (2016) An ultrahigh-dimensional high-order epistatic mapping model of complex traits. PLoS Computational Biology (submitted).

Wang NT, **Gosik K**, Li R, Lindsay B, Wu R (2015) A block mixture model to map eQTLs for gene clustering and networking. Scientific Reports **6**, Article number: 21193.

Wang Q, **Gosik K**, Xing S, Jiang L, Sun L, Chinchilli VM, Wu R (2016) Epigenetic game theory: How to compute the epigenetic control of maternal-to-zygotic transition. Physics of Life Review (in press).

Wang, Y., **Gosik, K**., Berceli, S., Garbey, M., Wu, R. (2016) Inference of gene regulatory network through adaptive dynamic Bayesian network modeling. BMC Bioinformatics (revised).

Jiang LB, Ye MX, Zhu XL, Mao K, Sun LD, **Gosik K**, Wu R (2016) A mechanistic mapping model of ecological interactions by integrating functional mapping and competition theory. Sci Rep (revised)

Fu LY, Jiang LB, Ye MX, Sun LD, **Gosik K**, Tang SZ, Wu R (2016) A game-theoretic model for mapping carbon allocation of stem growth in trees. Briefings in Bioinformatics (submitted).

Book chapters

Sun LD, Jiang LB, Ye MX, Zhu XL, Wang J, **Gosik K**, Wu R (2015) Functional mapping: How to map genes for phenotypic plasticity of development. In: Evolutionary Biology, edited by P. Pierre. Springer, New York, pp. 3-17.

CONFERENCE PROCEEDINGS (SPEAKERS UNDERLINED)

Gosik K, Wu R, High-dimensional modelling of genotype-phenotype map construction. Eastern North American Region (ENAR) of the International Biometric Society, Miami, FL, March 16-19, 2015.

Gosik K., Wu R. Modeling high-order epistasis using high-dimensional data. Eastern North American Region (ENAR) of the International Biometric Society, Austin, TX, March 16-19, 2016.

JOURNAL REVIEWER

PLoS ONE