Justin Finkle

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Education

Northwestern University, Evanston, Illinois
Doctor of Philosophy Candidate in Molecular Biosciences
Anticipated completion by December 2017

Cornell University, Ithaca, New York
Bachelor of Science in Biological Engineering, June 2011
Magna Cum Laude

Current Research

The complex, dynamic, and context-dependent behavior of biology hampers the development of control strategies for living systems. Correct identification of biological regulatory systems yields the unique ability to rapidly design personalized, targeted therapeutics. My research focuses on creating computational methods to accurately infer intracellular signaling networks from high-throughput, time series data. I employ these methods to elucidate the regulatory role of Sprouty, a known tumor suppressor, and determine novel targets for cancer therapeutics.

Publications and Presentations

- Moura, ME, **Finkle, JD**, Stainbrook S, Greene J, Broadbelt LJ, Tyo, KEJ (2016). Evaluating Enzymatic Synthesis of Small Molecule Drugs. *Metabolic Engineering.* 33: 138-147.
- Ciaccio, MF, **Finkle, JD**, Xue, AY, and Bagheri, N (2014). A Systems Approach to Integrative Biology: An Overview of Statistical Methods to Elucidate Association and Architecture. *Integrative and Comparative Biology.* 54 (2): 296-306.
- **Finkle, JD**, Ciaccio, MF, Bagheri, N (2015). Reconstruction of a Cellular Signaling Network in Embryonic Fibroblasts from Time-course Gene Expression Profiles Reveals the Mechanism of the SPRY2 Tumor-suppressor. Oral Presentation. *BMES Annual Meeting.* Tampa, FL.
- **Finkle, JD**, et al. (2013). Dynamic LASSO regression identifies RNA transcripts regulated by transcription factors in breast cancer cells. Poster Presentation. *RECOMB/ISCB Conference on Regulatory and Systems Genomics.* Toronto, ON, Canada.
- **Finkle, JD**, et al. (2013). High-throughput quantification of protein abundance for distinct subtypes of cancer. Poster Presentation. *National Center for Systems Biology Annual Meeting.* Bethesda, MD

Awards

- Northwestern Nicholson Fellowship (Present)
- NIH Biotechnology Training Program (2013-2015)
- HPN-DREAM8 Challenge: 2nd Place Visualization, 6th Place Breast Cancer Network Inference (2013)

  Related Publication: Hill, SM, et al. (2016). Inferring causal molecular networks: empirical assessment through a community-based effort. *Nature Methods.* 13: 310-8
- NSF Graduate Fellowship Honorable Mention (2012, 2013)

Employment and Research

Genentech — **South San Francisco, CA**
Bioinformatics Intern — June – September 2016

Developed a software package in R for innovative visualizations of omics data. Produced interactive and integrative tools to provide new insight into multiscale data. Worked with a small team in an agile development paradigm.

Demand Management Institute — **Wellesley, MA**
Project Engineer — 2011 – 2012
Co-op Engineer — January – July 2010

Created software to interface energy-metering equipment with the Internet to provide real-time updates to consumers, consultants, and utility companies. Reviewed energy efficiency of combined heat and power installations for National Grid's New England operations. Learned extensively about building energy demands, energy modeling, HVAC and lighting, and the mechanics of the energy industry. Wrote software, proposals, memos, and reports for customers and program administrators.

Cornell University — **Ithaca, NY**
Undergraduate Research — 2009 – 2011

Conducted research for Professors Larry Walker and Lindsay Anderson on a Biofuels Technical Assessment for Toyota and the DOE. Assessed various feedstocks for feasibility as sources of biofuels, particularly in the US. Reviewed scientific literature in the field and provided in-depth analysis of available feedstocks, which was used in the report.

Leadership and Outreach

Organizer — August 2015
ComSciCon-Chicago, Chicago, IL
http://comscicon.com/comscicon-chicago-2015

President — 2013 – 2014
Interdisciplinary Biological Sciences Student Organization
Northwestern University, Evanston, IL
http://www.ibis.northwestern.edu/students/iso.html

Scientific Pen Pal — 2013 – Present
Letters to a Pre-Scientist
http://www.prescientist.org/

Professional Affiliations

- Biomedical Engineering Society (BMES)
- International Society for Computational Biology (ISCB)
- Tau Beta Pi Engineering Honor Society
- New York State Engineer in Training (EIT)

Skills

- Python, R, MATLAB, C++, VBA
- Machine learning methods including PCA, clustering, regression, classification and RandomForest
- Software development and data visualization
- Bioinformatics including analysis of RNA-seq, ChIP-seq, and other omics data
- Biosynthetic pathway design and discovery