

Molly Megraw

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Education

University of Pennsylvania

Ph.D. Candidate in Genomics and Computational Biology

- Research Assistant, Advisor: Prof. Artemis Hatzigeorgiou
- G.P.A: 3.9/4.0

Philadelphia, PA, USA

2002 – present

Johns Hopkins University

M.S.E. Mathematical Sciences

- G.P.A: 4.0/4.0
- Focus: Linear and Non-Linear Optimization

Baltimore, MD, USA

May 1999

University of Washington

B.S. Mathematics, B.S.E. Interdisciplinary Engineering

- G.P.A: 3.9/4.0
- Focus: Control Systems, Mechanical Engineering

Seattle, WA, USA

June 1996

Academic Research Experience

Dept. of Genetics, University of Pennsylvania

Doctoral Student

- Combined bioinformatic-experimental approaches to microRNA promoter element identification
- Machine learning approaches to eukaryotic microRNA gene identification
- Computational analysis of microRNA genomic organization and function

Philadelphia, PA, USA

Fall 2002 – present

Institute for Mathematics and its Applications

Student Researcher

- Summer research experience on the topic of algorithms for the construction of provably secure computer operating systems

Minneapolis, MN, USA

Summer 1998

The Geometry Center

Student Researcher

- Summer research experience on using the Circular Restricted Three-Body Problem to model a sun-earth-spacecraft system

Minneapolis, MN, USA

Summer 1996

Industrial Research Experience

Daniel H. Wagner Associates

Analyst

- Wagner Associates is a mathematics and operations research firm supported by a combination of grants and private industry consulting
- Research project work on the application of tree models to design an automated confidence scoring system for genome sequence data

Malvern, PA, USA

1999-2002

Hewlett Packard Laboratories

Research Intern

- Full-year research experience on error analysis of color output for inkjet printers

Palo Alto, CA, USA

1997

Teaching Experience

Johns Hopkins University

Teaching Assistant, Department of Mathematical Sciences

- Courses: Linear Algebra and Differential Equations, Dynamical Systems, Introduction to Statistics, Probability and Statistics for the Physical Sciences and Engineering

Baltimore, MD, USA

1998-1999

Center for Talented Youth

Summer Program Instructor

- Course: Introduction to Computing

Chestertown, MD, USA

Summer 1998

Academic Honors and Awards

- 2003 Best graduate student poster, Greater Philadelphia Bioinformatics Alliance
- University of Washington 1994 Faculty Medalist
- National Merit Scholarship
- Member of Tau Beta Pi Engineering Society
- Member of Phi Beta Kappa

Publications

M. Megraw, P. Sethupathy, B. Corda, and A.G. Hatzigeorgiou (2007). miRGen: A database for the study of animal microRNA genomic organization and function. **Nucleic Acids Research**, 35:D149-D155.

P. Sethupathy, **M. Megraw**, and A.G. Hatzigeorgiou (2006). A guide through current computational approaches for the identification of mammalian microRNA targets. **Nature Methods**, 3:881-6.

M. Megraw, V. Baev, V. Rusinov, S.T. Jensen, K. Kalantidis, and A.G. Hatzigeorgiou (2006). MicroRNA promoter element discovery in Arabidopsis. **RNA**, 12:1612-9.

L. Zhang, J. Huang, N. Yang, J. Greshock, **M. Megraw**, A. Giannakakis, S. Liang, T.L. Naylor, A. Barchetti, M.R. Ward, G. Yao, A. Medina, A. O'Brien-Jenkins, D. Katsaros, A. Hatzigeorgiou, P.A. Gimotty, B.L. Weber, G. Coukos. (2006). microRNAs exhibit high frequency genomic alterations in human cancer. **PNAS**, 103:9136-41.

K. Szafranski, **M. Megraw**, M. Reczko, and A. G. Hatzigeorgiou (2006). Support Vector Machines for Predicting microRNA Hairpins. **Proceedings of the 2006 International Conference on Bioinformatics and Computational Biology**, 270-276.

P. Sethupathy, **M. Megraw**, M.I. Barrasa, and A.G. Hatzigeorgiou (2005). Computational Identification of Regulatory Factors Involved in MicroRNA Transcription. **Lecture Notes in Computer Science**, 3746:457-468.

Peer Reviewed Conference Abstracts

M. Megraw, S.T. Jensen, V. Baev, K. Kalantidis, and A.G. Hatzigeorgiou (2006). MicroRNA promoter element discovery in Arabidopsis. *Cold Spring Harbor Annual Symposium: Regulatory RNAs*, Cold Spring Harbor, NY, USA.

M. Megraw, S.T. Jensen, V. Baev, K. Kalantidis, and A.G. Hatzigeorgiou (2006). MicroRNA promoter element discovery in Arabidopsis. *Keystone Symposium: RNAi and Related Pathways*, Vancouver, British Columbia, Canada.

Book Chapters

P. Sethupathy, **M. Megraw** and A.G. Hatzigeorgiou (2006). Computational approaches to elucidate microRNA biology. In *microRNAs: From Basic Science to Disease Biology*, ed. Krishnarao Appasani, Cambridge University Press.

A.G. Hatzigeorgiou and **M. Megraw** (2006). Computational Analysis of Human DNA Sequences: An Application of Artificial Neural Networks. In *Global Optimization, Scientific and Engineering Case Studies*, ed. Janos Pinter, Springer.