

Henry Mirsky

Program in Biomolecular Science and Engineering
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EDUCATION

University of California, Santa Barbara

PhD, Program in Biomolecular Science and Engineering (BMSE), *expected 2009*
Research Topic: Modeling and Analysis of the Mammalian Circadian Clock
Thesis Advisor: Professor Francis J Doyle III

University of Arizona, Tucson

BS, Molecular and Cell Biology, 2001, *Summa cum laude*

Cornell University, Ithaca, NY

BS, Materials Science and Engineering, 1986

EXPERIENCE

University of California, Santa Barbara

Graduate Student Researcher, Department of Chemical Engineering, 2005 – Present

- Developed mathematical model of intracellular mouse circadian clock
- Developed methodology to assess sensitivity and noise propagation in oscillatory systems
- Analyzed deterministic mammalian circadian clocks for local and semi-global parametric sensitivities
- Analyzed stochastic mammalian circadian clocks for behavior associated with noise propagation

Lehigh University, Bethlehem, PA

Visiting Scientist, Department of Biology, 2003 – 2004

- Developed computational techniques to predict the presence of RNA editing sites in mammals
- Verified the existence of RNA editing sites in mammals

Pioneer Hi-Bred / DuPont, Johnston, IA

Bioinformatics Intern, Computational Biology Group, 2002

- Wrote Perl programs to identify clusters of orthologous genes (COGs) among Arabidopsis, maize, rice, soybean, yeast, and Synechocystis

- Designed and populated Oracle database schema with COGs data
- Developed web browser interface (HTML/CGI) to access COGs data
- Designed ontology for maize
- Designed and populated MySQL and Oracle database schemata with plant ontology data

University of Arizona, Tucson

Bioinformatics Assistant, Department of Plant Sciences, 2000 – 2001

- Wrote Perl programs to identify yeast/Arabidopsis orthologs
- Designed and populated MySQL database schema to store ortholog data
- Developed web browser interface to display ortholog data
- Located and verified gene sequences that code for chromatin-modification proteins in Arabidopsis

Anadigics, Warren, NJ

Process Engineer/Project Engineering Manager, Process Engineering Group, 1986-1997

- Developed new photolithographic, etch, and metallization modules for production of GaAs integrated circuits
- Provided scanning electron microscope (SEM) and focused ion beam (FIB) services for process and design communities
- Maintained visual quality of finished product
- Managed transition from 3"-diameter to 4"-diameter GaAs substrates, including qualification of materials, procurement of new equipment, development and modification of processes, and final acceptance
- Began planning for new wafer fabrication facility
- Supervised staff of process engineers and technicians

HONORS AND ACHIEVEMENTS

- Winner, Best Paper Award, Computers and Chemical Engineering, 2006
- Biomaterials Fellowship, University of California – Santa Barbara, 2004
- Leland Jackson Fellowship in Bioinformatics, 2002
- Phi Beta Kappa, 2001
- Summa Cum Laude, University of Arizona, 2001
- Finalist, Analytical Writing Competition, University of Arizona, 1999
- Engineering Design Award, Space-Based Solar Cells, Cornell University, 1986

SKILLS

General Computer Skills

- Facility in UNIX and Windows operating environments
- Expertise in Microsoft Office applications
- Programming capability in Perl and Matlab (also some C++, Java, and Visual Basic)
- Experience with HTML, SQL, CGI, and MySQL and Oracle databases

Bioinformatics Skills

- Experience with BLAST tools and gene prediction programs
- Familiarity with Flybase, SGD, GenBank, SwissProt, and other gene and protein databases

Molecular Biology Skills

- Experience with gel electrophoresis, PCR, and DNA extraction and purification

PUBLICATIONS

- Mirsky H, Stelling J, Gunawan R, Bagheri N, Taylor SR, Kwei E, Shoemaker JE, Doyle FJ, III (2009) Automatic Control in Systems Biology in *Handbook of Automation*, ed Nof SY, to be published by Springer.
- Yuraszeck T, Chang P, Gayen K, Kwei E, Mirsky H, Doyle FJ, 3rd (2009) Methods for In Silico Biology: Model Construction and Analysis in *Systems Biology in Drug Discovery and Development*, ed Young DL, Michelson S, to be published by Wiley.
- Mirsky H, Liu AC, Welsh DK, Kay S, Doyle FJ, III (2009) A Model of the Uncoupled Mammalian Circadian Clock *Proc Natl Acad Sci USA*, Submitted.
- Hildebrandt S, Bagheri N, Gunawan R, Mirsky H, Shoemaker J, Taylor S, Doyle FJ, III (2007) Systems Analysis of Biological Networks in Systems Biology in *Systems Biology*, eds Liu ET, Nolan GP, Lauffenburger DA, to be published by Academic Press.
- Doyle FJ, III, Gunawan R, Bagheri N, Mirsky H, To TL (2006) Circadian rhythm: A natural, robust, multi-scale control system *Comput Chem Eng* 30:1700-1711.
- Luciano DJ, Mirsky H, Vendetti NJ, Maas S (2004) RNA editing of a miRNA precursor *RNA* 10:1174-1177.

PRESENTATIONS

- Mirsky H, Liu AC, Welsh DK, Kay SA, Doyle FJ, III (May 2008) A Mathematical Model of the Decoupled Mouse Circadian Clock *Society for Research on Biological Rhythms 11th Biennial Meeting, Sandestin, FL* (Talk)
- Mirsky H, Liu AC, Welsh DK, Kay SA, Doyle FJ, III (November 2007) Single-Cell Level Model of the Mammalian Circadian Clock *AIChE Annual Meeting, Salt Lake City, UT* (Talk)
- Mirsky H, Liu AC, Welsh DK, Kay SA, Doyle FJ, III (October 2007) A Model of the Uncoupled Mammalian Circadian Clock *7th International Conference on Systems Biology, Long Beach, CA* (Poster)
- Mirsky H, Gunawan R, Taylor S, Stelling J, Doyle FJ, III (November 2006) Noise Propagation and Sensitivity in Mammalian Circadian Clocks *AIChE Annual Meeting, San Francisco, CA* (Talk)