

# Shawn T. O'Neil

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3135 Ag. and Life Sciences Bldg.  
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## Current

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### Oregon State University, Center for Genome Research and Biocomputing

*Faculty Research Assistant*

Bioinformatics Instruction, research, and consultation

## Education

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### University of Notre Dame

*Ph.D., Computer Science and Engineering*

**April, 2012**

Dissertation: "Non-Model Transcriptomics: Applications, Assessments, and Algorithms"

Co-Advisors: Dr. Scott J. Emrich (Comp. Sci.), Dr. Jessica J. Hellmann (Biological Sci.)

*M.S., Computer Science and Engineering*

Thesis: "Expert Advice and the Newsvendor Problem"

**May, 2009**

Advisor: Dr. Amitabh Chaudhary (Comp. Sci. and Eng.)

### Northern Michigan University

*B.S., Computer Science (Minor in Mathematics)*

Summa Cum Laude

**May, 2005**

## Interests

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Bioinformatics for non-model species; transcriptome sequencing and comparative analysis of de-novo transcriptome assemblies; algorithms for population-level genomic sequence data; graph algorithms and online algorithms; resources and pedagogy for interdisciplinary (biological and computational) education.

## Books

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### A Primer for Computation Biology

*by Shawn T. O'Neil, OSU Press, In Review*

A collaboration between the Oregon State University Press and Library, an open-access textbook/primer covering skills needed for success in computational biology: the Unix/Linux command-line, programming in Python, and programming in R.

## Articles

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- O'Neil ST, Zhao X, Sun D, Wei J. "Newsvendor problems with demand shocks and unknown demand distributions." *Decision Sciences*: In Press.
- Fister SA, O'Neil ST, Shi Z, Zhang Y, Tyler BM, Gultinan MJ, Maximova SN. "Two *Theobroma cacao* genotypes with contrasting pathogen tolerance show aberrant transcriptional and ROS responses after salicylic acid treatment." *Journal of Experimental Botany*: In Press.

## (Articles cont.)

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- O'Neil ST. "Implementing persistent O(1) stacks and queues in R." *R Journal*: 7(1), pp 118–126, 2015.
- O'Neil ST, Dzurisin JDK, Williams CM, Lobo NF, Higgins HK, Deines JM, Carmichael RD, Zeng E, Tan JC, Wu GC, Hellmann JJ. "Gene expression in closely-related species mirrors local adaptation: consequences for a warming world." *Molecular Ecology*: 23, pp 2686–2698, 2014.
- Gouthu S, O'Neil ST, Di Y, Ansariola M, Megraw M, Deluc LG. "A comparative study of ripening among berries of the grape cluster reveals an altered transcriptional programme and enhanced ripening rate in delayed berries." *Journal of Experimental Botany*: 65(20), pp 5889–5902, 2014.
- O'Neil ST, Emrich SJ. "Assessing de novo transcriptome assembly metrics for consistency and utility." *BMC Genomics*: 14(1), pp 465+, 2013.
- Abrudan J, Ramalho-Ortigão M., O'Neil ST, Stayback G, Wadsworth M, Bernard M, Shoue D, Emrich SJ, Lawyer P, Kamhawi S et al. "The characterization of the *Phlebotomus papatasi* transcriptome." *Insect Molecular Biology*: 22(2), pp 211–232, 2013.
- O'Neil ST, Emrich SJ. "Haplotype and minimum-chimerism consensus assembly of short sequence data." *BMC Genomics*: 13(Suppl 2):S4, 2012.
- O'Neil ST, Chaudhary A, Chen DZ, Wang H. "The topology aware file distribution problem." *Journal of Combinatorial Optimization*: 11(3), pp 1–15, 2011. (Also presented at The 17<sup>th</sup> Annual International Computing and Combinatorics Conference (COCOON); LNCS 6842: pp 366–378, 2011.)
- O'Neil ST, Emrich SJ "Robust haplotype reconstruction of eukaryotic read data with Hapler." 1<sup>st</sup> International Conference on Computational Advances in Bio and medical Sciences (ICCABS), pp 141–146, 2011.
- O'Neil ST, Dzurisin JDK, Carmichael RD, Lobo NF, Emrich SJ, Hellmann JJ. "Population-level transcriptome sequencing of non-model organisms *Erynnis propertius* and *Papilio zelicaon*." *BMC Genomics*: 11(1), pp 310+, 2010.
- O'Neil ST, Chaudhary A. "Comparing online learning algorithms to stochastic approaches for the multi-period newsvendor problem." Proceedings of the 9th Workshop on Algorithm Engineering and Experiments (ALENEX), pp 49–63, 2008.

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## Selected Posters, Presentations, Awards

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- O'Neil ST, Hellmann JJ, Emrich SJ, Dzurisin JDK, Williams CM. "Related insects show differing amounts of population differentiation and localization of transcribed genes in response to climate." Arthropod Genomics Symposium. June 15, 2013. Presentation.
- O'Neil ST, Brenberg T, Colaco A, McLachlan J, Emrich SJ. "Reconstructing Ancient Barcode DNA With Hapler." Notre Dame CSE Student Research Symposium. November 7, 2011. Poster. *Chosen best poster by student vote.*
- O'Neil ST, Chaudhary A. "Comparing online learning algorithms to stochastic approaches for the multi-period newsvendor problem." Proceedings of the 9th Workshop on Algorithm Engineering and Experiments (ALENEX). January 19, 2008. Presentation.
- University of Notre Dame:
  - Eck Institute for Global Health Bioinformatics Fellowship
  - Kaneb Center Outstanding Graduate Student Teacher Award
  - Arthur J. Schmitt Fellowship
- Northern Michigan University: Merit Excellence Award, Summa Cum Laude
- State of Michigan: Merit Award and Competitive Scholarship

## Academic Service and Professional Experience

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### Bioinformatics Users' Group (BUG), OSU

*Founder (Winter 2012 to Present)*

Regular meeting group for researchers dedicated to discussing bioinformatics topics and applications; upwards of 40 regularly attending members.

### Teaching

*Instructor; MCB, Statistics, and CGRB, OSU (Winter 2012 to Present)*

Developed and taught multiple special-topics courses in computational biology for the Molecular and Cellular Biology graduate program, the Statistics department, and the Center for Genome Research and Biocomputing at Oregon State University.

*Instructor; Basic Computing for Bioinformatics, ND (Fall 2010 to Fall 2011)*

Developed a course in the Computer Science department offered to Biology graduate students, staff, and faculty, focused on applied computational science.

*TA; Multiple Courses, ND (Fall 2008 to Fall 2010)*

Teaching assistant duties (including lecturing) for Computer Science courses: Discrete Mathematics, Linear Programming, Multimedia Systems. Won Outstanding Graduate Student Teacher Award for work in Discrete.

(Experience cont.)

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**Society of Schmitt Fellows, ND**

*Founder (August 2009 to June 2012)*

Organized the first chapter of the Society of Schmitt Fellows: the student organization representing graduate students receiving the Arthur J. Schmitt fellowship at the University of Notre Dame.

**Notre Dame/Michiana Science Cafe**

*Co-Organizer (May 2009 to August 2011)*

The Science Cafe is a monthly venue for scientists and engineers to present interesting topics to the local community.

**Amazon.com**

*Internship, Software Development Engineer (Summer 2008)*

Software development for the supply chain optimization and inventory control team. Worked on tools for visibility and analysis of Amazon.com's complex supply chain.