JAMES (JAMIE) T. MORTON

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EDUCATION

Graduate	University of Colorado, Boulder
2014 - Present	PhD student in Computer Science
	Integrative Quantitative Biology Program
Undergraduate	Miami University
2010 - 2014	Four B.S. Degrees with majors in
	Computer Science (Cum Laude)
	Engineering (Cum Laude)
	Mathematics and Statistics
	Engineering Physics
	GPA: 3.74/4.0
Study Abroad	Hong Kong University of Science and Technology
Spring 2012	

HONORS

- **NSF Graduate Fellow**, 2015 - 2018 (Started date deferred from Fall 2014 as requested)
- **Integrated Quantitative Biology Fellowship**, University of Colorado Boulder, 2014 - 2016
- **National Barry Goldwater Scholar**, 2013
- **Benjamin Harrison Scholar**, Miami University, 2010-2014
- **First place**, Institute of Navigation (ION) Autonomous Snowplow Competition, 2014
- **NSF REU**, Cold Spring Harbor Laboratories, Summer 2012
- **Provost Academic Achievement Award**, Miami University, 2012
- **Ohio Space Grant Scholar Award**, NASA, 2012 - 2014
- **Dean's List**, Miami University, 2010-13
- **R.L. Edwards Scholarship**, Department of Physics, Miami University, 2011, 2013
- **Mary Jeannette and Clifford Harvey Scholarship**, Department of Mathetmatics, Miami U., 2013
- **Mary Jean and Joseph R. Priest Scholarship**, Department of Physics, Miami University, 2012
- **President List**, Miami University, 2010-11
- **Nestle Scholar**, Computer Sci. and Software Eng. Dept, Miami University, 2011
- **Faculty Prize**, Department of Mathematics, Miami University, 2011
- **Joseph A. Culler** Award, Department of Physics, Miami University, 2010,2011
- **NSF Travel Grant**, Coupling, Energetics, & Dynamics of Atmospheric Regions workshop, 2010
- **Wright Scholar**, Air Force Research Laboratory, Wright Patterson Air Force Base, 2009

EXPERIENCE

Research Experience

Rotation student University of Colorado, Boulder, CO, Fall 2014

- Worked with Dr. Christopher Lowry
- Developed software tools to visualize mouse microbial data
- Co-author on manuscript under preparation.

Rotation student University of Colorado, Boulder, CO, Fall 2014

- Worked with Dr. Noah Fierer and Albert Barberan
- Developed a Random Forests classifier to classify homes with pets based on dust samples
- Co-author on manuscript under preparation.

Research Assistant Miami University, OH, Summer 2014

- Worked with Dr. Iddo Friedberg
- Developed software tool to identify bacteriocin associated gene clusters
- First author on conference oral presentation accepted at Rocky Mountains Bioinformatics Conference.
- First author on journal manuscript ready for submission.

Data Scientist Intern Johns Hopkins University, MD , Summer 2013

- Worked with Dr. Benjamin Langmead to develop scalable RNAseq Analysis software
- Developed spliced alignment algorithm using the Hadoop Framework.
- Co-author on manuscript under preparation.

Undergraduate Research Program Cold Spring Harbor Laboratories, NY , Summer 2012

- Worked with Dr. Thomas Gingeras and Dr. Alex Dobin
- Developed software that maps reads between the reference and personal genome
- Studied Allele Specific Expression in a personal genome
- Results incorporated into PIs NSF proposal

Research Assistant Miami University, OH , Spring 2011 - Fall 2011

- Worked with Dr. John Karro and Dr. Chun Liang
- Designed Hidden Markov Model software to identify poly(A) tails in RNAseq data
- Designed Profile Hidden Markov Model software to identify adapter sequences in RNAseq data
- Contributed HMMER parser to Biopython
- Released a software package, presented poster at Genome Informatics 2011

Research Assistant Miami University, OH , Summer 2010

- Worked with Dr. Qihou Zhou on processing incoherent scattering radar data
- Developed signal processing algorithms to extract atmospheric parameters from this data
- Awarded NSF travel grant to present a poster paper at an international workshop

Engineering Aide Wright Patterson Air Force Base, OH, Summer 2010

- Designed and implemented a time difference of arrival localization algorithm
- Programmed USRP using GNU radio for signal transmission and receiving

Wright Scholar Wright Patterson Air Force Base, OH, Summer 2009

- Studied cognitive radio, radar, and GPS concepts and techniques

Teaching Experience

Teaching Assistant Miami University, OH, Spring 2011

- Assisted Professor Mostafa Modirrousta in teaching of two sections of Intro to Engineering labs
- Graded lab reports for a class of 32 students

Teaching Assistant Miami University, OH, Spring 2008

- Assisted Professor Felice Marcus to teach a class of Chinese engineers English

National Competitions

Autonomous Snowplow Competition St. Paul MN, January, 2014

- One of three team members, First Place Award, Best Report Award, Best Presentation Award

Intelligent Ground Vehicle Competition Rochester, MI , Summer 2013

- One of four team members, 5th place in Design

SKILLS

Foreign Language Skills

- Chinese – Working Proficency in Mandarin and written Chinese

Technical Skills

- Python
- C/C++
- Java
- Javascript
- LaTeX
- ROS
- Hadoop
- Matlab
- R
- Unix
- SQL
- OpenCL
- CUDA
- git

PUBLICATIONS

- Morton, J., Abrudan, P., Figuegoaa, N., Liang, C., Karro, J.
  SCOPE++: Sequence Classification Of homoPolymer Emissions, *Genomics*. 104.3 (2014) 157–162
- Morton, J., Freed, S. Lee, S. Friedberg, I
  Prediction of Bacteriocin Associated Operons, Near ready for submission
- Nellore A., Morton, J., Langmead B.
  Rail-RNA: A scalable spliced read aligner, Near ready for submission
- Insights into Indoor Microbial Communities
  Barberan, A., Dunn, R. Fierer, N., Morton, J. , In preparation

PRESENTATIONS

- Morton, J., Freed, S. Lee, S. Friedberg, I. Prediction of Bacteriocin Associated Operons
  Rocky Mountain Bioinformatics Conference, 2014
- Morton, J., Freed, S. Lee, S. Friedberg, I. A pipeline for Identifying Bacteriocin-Associated
  Gene Clusters. ISMB Boston, 2014
- Morton, J., Freed, S. Lee, S. Friedberg, I. Discovering the Next Antibiotic
  Ohio Space Grant Consortium, Cleveland OH, 2014
- Morton, J., P., Abrudan, J. Karro, C. Liang , Sequence classification of homopolymer emissions
  (SCOPE), Great Lakes Bioinformatics Conference, Pittsburgh, PA, 2013
- Morton, J., P., Abrudan, J. Karro, C. Liang , Sequence classification of homopolymer emissions
  (SCOPE), Ohio Space Grant Consortium, Cleveland OH, 2013
- Morton, J., P., Abrudan, J. Karro, C. Liang , Sequence classification of homopolymer emissions
  (SCOPE), IEEE 2nd International Conference on Computational Advances in Bio and
  Medical Sciences, ICCABS 2012, Las Vegas, NV, February 2012
- Morton, J., J. Karro, C. Liang, A novel approach for identifying poly(A) tails in
  raw cDNA sequence data using General Hidden Markov Models, Genome Informatics
  Cold Spring Harbor, NY, November 2011.

OPEN SOURCE CONTRIBUTIONS

- Sci-kit Bio (Contributor)
- Emperor (Contributor)
- Scipy (Contributor)
- Biopython (Contributor)
- SCOPE++: Sequence Classification Of homoPolymer Emissions (Developer)

ACTIVITIES

- International Society of Computational Biology Student member, Summer 2014-Present
- Sigma Pi Sigma,Tau Beta Pi,Eta Kappa Nu Spring 2014-Present
- National Society of Collegiate Scholars, Fall 2012 - Spring 2013
- Association for Computing Machinery Student member, Fall 2011-Present
- Institute of Electrical and Electronics Engineers Student member, Fall 2011-Present
- IEEE Miami Student Chapter Treasurer, Fall 2011- Spring 2012