JAMES T. MORTON

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EDUCATION

Undergraduate Miami University
2010 - Present B.S. in Computer Science
B.S. in Electrical Engineering
B.S. in Mathematics and Statistics
B.S. in Engineering Physics
GPA: 3.85/4.0

Study Abroad Spring 2012 Hong Kong University of Science and Technology

Secondary Talawanda High School
2006 - 2010 Class rank: 2/275 GPA: 4.45/4.0

HONORS

- Goldwater Scholar, 2013
- NSF REU, Cold Spring Harbor Laboratories, Summer 2012
- Harrison Scholar, Miami University, 2010-2014
- First place, Institute of Navigation (ION) Autonomous Snow Plow Competition, 2014
- Best Presentation and Best Report, ION Autonomous Snow Plow Competition, 2014
- Provost Academic Achievement Award, Miami University, 2012
- Ohio Space Grant Scholar Award, NASA, 2012 - 2014
- Deans List, Miami University, 2010-13
- R.L. Edwards Scholarship, Department of Physics, Miami University, 2013
- Mary Jeannette and Clifford Harvey Scholarship, Mathematics Department, 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, 2011
- R.L. Edwards Scholarship, Department of Physics, Miami University, 2011
- Joseph A. Culler Award, Department of Physics, Miami University, 2010
- NSF Travel Grant, Coupling, Energetics, & Dynamics of Atmospheric Regions workshop, 2010
- Second place team leader, Institute of Navigation Mini-Urban Challenge, Ohio competition, 2010
- Wright Scholar, Air Force Research Laboratory, Wright Patterson Air Force Base, 2009
- First place team member, Institute of Navigation Mini-Urban Challenge, Ohio competition, 2009

EXPERIENCE

Research Experience

Data Scientist Intern Johns Hopkins University, MD , Summer 2013

• Worked with Dr. Benjamin Langmead to develop scalable RNAseq Analysis software
• Integrated Hadoop framework for RNAseq analysis software
• Developed a novel spliced alignment algorithm using Bowtie
• Used SWIG to interface Python and C code

Research Assistant Miami University, OH , Fall 2013

• Worked with Dr. Iddo Friedberg and Dr. John Karro
• Developed BLAST pipeline to identify bacteriocins in bacterial genomes

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

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

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

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

Class Projects

Intelligent Ground Vehicle Competition Rochester, MI , Summer 2013

- Interfaced with the Bumblebee2 Stereo camera
- Developed computer vision algorithms to identify white lines on the ground
- Interfaced CUDA with ROS to speed up computer vision software
- Helped install ROS framework on autonomous vehicle

Embedded Systems Miami University, OH, Spring 2013

- Participated in a group project and built a LED POV sphere

Artificial Intelligence Miami University, OH, Fall 2012

- Participated in a group project to develop an AI player to play Breakthrough
- Developed a C++/Java interface using JNI

Databases Miami University, OH, Fall 2011

- Participated in a group project to develop a social media program for recipe sharing
- Developed a Java Swing application for the user interface
- Constructed a SQL Query to store information about users and recipes

Digital Systems and Design Miami University, OH, Fall 2010

- Participated in a group project for Redhawk Duals, a competitive FPGA-based video game
- Designed and implemented a VGA interface for a FPGA
- Implemented a Finite State Machine to solve the Longest Path Problem

SKILLS

Technical Skills

• Python	• C/C++	• Java	• LaTeX
• Matlab	• R	• Bash	• Unix
• ROS	• Hadoop	• CUDA	• git
• Verilog	• MIPS assembly	• MySQL	• svn

Languages

- Chinese – Working Proficency
- English – Native speaker

OTHER ACTIVITIES

- National Society of Collegiate Scholars, Fall 2012 - Present
- Miami University Collegiate Chorale, Fall 2012.
- Institute of Navigation Autonomous Snowplow Competition support team, 2010-Present
- IEEE Miami Student Chapter Treasurer, Fall 2011- Spring 2012
- Miami University Mens Glee Club, Fall 2011-Spring 2012
- ACM Programming Contest, Fall 2011, Fall 2012
- International Global Game Jam, Spring 2011
- Miami University Symphony Orchestra, Spring 2010, Fall 2009

PRESENTATIONS

1. Morton, J., P., Abrudan, J. Karro, C. Liang , Sequence classification of homopolymer emissions (SCOPE), Great Lakes Bioinformatics Conference, Pittsburgh, PA, 2013
2. Morton, J., P., Abrudan, J. Karro, C. Liang , Sequence classification of homopolymer emissions (SCOPE), Ohio Space Grant Consortium, Cleveland OH, 2013
3. 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
4. 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.
5. Morton, J., C., Liang, and J. Karro. scrapplusplus – SCRAP Sequence Cleaning and Removal of Adapter Sequences using Profile HMMs Google Project Hosting. Retrieved from http://code.google.com/p/scrapplusplus, 2012
6. Morton, J., J. Karro, and C. Liang. scopeplusplus – SCOPE Sequence Classification Of homoPolymer Emissions. Google Project Hosting. Retrieved from http://code.google.com/p/scopeplusplus, 2012
7. Morton, J., MiniUrban Challenge: An Institute of Navigation Autonomous Robot Competition, Miami University, November 2010
8. Santana, J., J. Morton, Q. Zhou, A Fuzzy Logic Approach to Extract Plasma Line Frequencies from Arecibo Incoherent Scatter Radar Measurements, Coupling, Energetics, and Dynamics of Atmospheric Regions Workshop, Boulder, CO, June 2010.
9. Morton, J., C. Meikle, K. Danielson, Dumbo: An Intelligent Lego Robot, Mini-Urban Challenge, Dayton, OH,June 2010.
10. Brezheva, D., J. Morton, C. Meikle, K. Danielson, S. Joseph, R. Morton, StarCruizer: An Intelligent Lego Robot,Mini-Urban Challenge, Dayton, OH, June 2009