

Ryan Hoffman

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Education

Georgia Institute of Technology and Emory University, Biomedical Engineering Fall 2013 – Present

Current. Pursuing a Ph.D. in Biomedical Engineering. Current GPA: 3.88

Georgia Institute of Technology, B.S. Biomedical Engineering Fall 2008 – Fall 2012

Graduated December 2012 with Highest Honors. Cumulative GPA: 3.85.

Experience

Graduate Research Assistant, Wang Lab, Georgia Tech and Emory University August 2013 – Present

- Public Health Informatics: Developing interoperable web application and decision support software for next-generation mortality reporting, working with the CDC's National Center for Health Statistics.
- Biomedical Imaging Informatics: Analyzing histopathology slides for useful features. These features can be used for survival predictions, typing, and grading of tumors, as well as classification of tissue types.
- Healthcare Informatics: Bedside monitoring waveform processing and machine learning techniques for predictive health applications.

Business Intelligence Intern, Children's Healthcare of Atlanta June 2014 – August 2014

- Big Data in Practice: As an intern in the BI department at Children's Healthcare of Atlanta, I gained experience with the state-of-the-art tools and techniques used to manage big data at enterprise-scale.
- Tools and Techniques for Big Problems: Beyond the challenges of enterprise-scale data management, I also developed, refined, and answered clinically relevant questions using these tools at scale.

Teaching Assistant, Dept. of Biomedical Engineering, Georgia Tech January 2013 – Present

- I have been a graduate TA for two semesters each of "Problems in Biomedical Engineering", "Quantitative Engineering Physiology Lab", and "Biomedical and Health Informatics" in the BME Department at Georgia Tech.
- International Experience: During the Summer 2013 semester, I had the opportunity to TA a lab introduction course for a group of study-abroad students from Peking University, China, incorporating material from cell culture and instrumentation labs.

Undergraduate Teaching Assistant, College of Computing, Georgia Tech August 2009 – December 2012

- Over the course of my undergraduate education, I was a TA for 8 semesters of CS-1371 in the CS department.
- Course Administration: I shared responsibility for grading homework and exams, and adjudicated simple grade disputes. For two semesters, I was charged with leading the Test-Writing sub-team. This position entailed leading a team of 6-8 other TAs in drafting and revising exams that would be taken by more than 1000 students each semester.

Research Assistant, Jo Lab, Emory University and Georgia Tech March 2012 – May 2013

- Bioinformatics: I was responsible for managing several whole-genome epigenetic data sets and integrating these sets with existing gene and transcription factor binding site databases.

Research Assistant / Research Consultant, Cosman Medical Inc. June 2011 – August 2013

- Finite element analysis: Developing a robust and extensible model of tissue undergoing radiofrequency ablation. This model entailed coupled electrical and thermal systems as well as methods for estimating thermal damage.
- Automation and image processing: Creating and refining an automated image segmentation system for characterizing the size and shape of thermal lesions in *ex vivo* samples.

Selected Publications and Presentations

Peer-Reviewed Journal Publications

- **Hoffman RA**, Wu H, Venugopalan J, Braun P, Wang MD. Intelligent Mortality Reporting with FHIR. *Journal of Biomedical and Health Informatics (IEEE JBHI)*. 2018.
- Wu PY, Cheng CW, Kaddi C, Venugopalan J, **Hoffman R**, Wang MD. –Omic and Electronic Health Record Big Data Analytics for Precision Medicine. *IEEE Trans Biomed Engr*, 2017.
- Dunn J, Qiu H, Kim S, Jjingo D, **Hoffman R**, Kim CW, et al. Flow-dependent epigenetic DNA methylation regulates endothelial gene expression and atherosclerosis. *J Clin Invest*, 2014.
- Cosman ER, Dolensky JR, and **Hoffman RA**. Factors That Affect Radiofrequency Heat Lesion Size. *Pain Med*, 2014.

Peer-Reviewed Conference Proceedings Publications

- **Hoffman RA**, Venugopalan J, Qu L, Qu H, Wang MD. Improving Validity of Cause of Death on Death Certificates. Accepted to ACM-BCB 2018.
- **Hoffman RA**, Wu H, Venugopalan J, Wang MD. Intelligent Mortality Reporting with FHIR. Presented at the 2017 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), 2017.
- Phan JH, **Hoffman R**, Kothari S, Wu PY, Wang MD. Integration of multi-modal biomedical data to predict cancer grade and patient survival. Presented at the 2016 IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI), 2016.
- **Hoffman RA**, Kothari S, Phan JH, Wang MD. Comparison of Normalization Algorithms for Cross-Batch Color Segmentation of Histopathological Images. Presented at the Engineering in Medicine and Biology Society (EMBC), 36th Annual International Conference of the IEEE, 2014, pp. 194–197.
- **Hoffman RA**, Kothari S, Phan JH, Wang MD. A High-Resolution Tile-Based Approach for Classifying Biological Regions in Whole-Slide Histopathological Images. *Proc. IFMBE International Conference on Health Informatics*, 2014, vol. 42, no. 71, pp. 280–283.

Relevant Skills

- **Computer Programming:** I am proficient in Scala, Java, MATLAB, and SQL. I have experience in Python, JavaScript, C++, C, and shell scripting.
- **Big Data Tools:** I have experience with the Hadoop software ecosystem at scale, including data science tools built on top of the Hadoop stack such as Apache Spark's MLlib and Cloudera Impala.
- **Engineering Software:** COMSOL Multiphysics FEA, LabVIEW, SolidWorks, LaTeX, Simulink
- **Biological lab techniques:** cell culture, PCR, RT-PCR, DNA/RNA isolation, gel electrophoresis

Awards, Scholarships, and Leadership

- **NIH T32 Trainee** (2014-2016). I was funded for two years through a National Institutes of Health training grant in Computational Biology and Predictive Health (T32 PI: Dr. Greg Gibson, Dept. of Biology, Georgia Tech)
- **National Merit Scholar** (2008). I received a four-year National Merit Scholarship, which helped to fund my undergraduate studies at Georgia Tech.
- **Eagle Scout, Boy Scouts of America** (October 2007)
- **HOPE / Zell Miller Scholar** (2008-2012). The HOPE Scholarship is a merit scholarship awarded to students at public institutions in Georgia with excellent GPAs.