Jack Hessel  
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Education

- **Cornell University**  
  *Ph.D. Student*  
  Ithaca, New York  
  2014 - Present  
  - Advisors: Lillian Lee, David Mimno  
  - Multimodal machine learning, natural language processing, social interactions

- **Carleton College**  
  *Bachelor of Arts*  
  Northfield, Minnesota  
  2010 - 2014  
  - Magna Cum Laude, Computer Science (with honors) and Mathematics/Statistics

Publications

- Hessel, Jack, Alexandra Schofield, Lillian Lee, and David Mimno. “What do Vegans do in their Spare Time? Latent Interest Detection in Multi-Community Networks.” NIPS 2015 Networks Workshop.

- Hessel, Jack, Nicolas Saava, and Michael J Wilber. “Image Representations and New Domains in Neural Image Captioning.” EMNLP 2015 Vision/Language Workshop.

- Hessel, Jack, and Sherri Goings. “Using Reproductive Altruism to Evolve Multicellularity in Digital Organisms.” In Advances in Artificial Life, ECAL, vol. 12, pp. 1091-1098. 2013.

- Albright, Evan, Jack Hessel, Nao Hiranuma, Cody Wang, and Sherri Goings. “A Comparative Analysis of Popular Phylogenetic Reconstruction Algorithms.” In Proceedings of the Midwest Instruction and Computing Symposium (MICS). 2014.

- Under the supervision of Professor Kilian Weinberger, contributed to a parallelized/GPU support vector machine package (tinyurl.com/wu-svm) for Tyree et al.’s “Parallel Support Vector Machines in Practice.” (arXiv preprint arXiv:1404.1066 (2014)).

Primary Projects

- **Multi-modal machine learning:** Using deep neural networks and computer vision techniques to align terabytes of text and images scraped from historical texts; training models to predict socially derived labels from multimodal inputs

- **Multi-community interactions:** Examining the language and behavior of users in a multi-community setting; conducting language analyses on datasets consisting of hundreds of millions of social media posts/comments.
Awards, Grants, & Honors

Nvidia Hardware Grant with David Mimno .............................................................. 2015
Cornell CS Outstanding TA Award ................................................................. 2015
Phi Beta Kappa, Beta of Minnesota ........................................................................ 2014
Sigma Xi Inductee, Carleton College Chapter ....................................................... 2014
MICS Best Paper: A Comparative Analysis of Phylogenetic Reconstruction Algorithms .............................. 2014
MICS Programming Contest 2nd place (60 teams) .............................................. 2014
Carleton College Dean’s List ...................................................................................... 2011 and 2013 Academic Years
Carleton College Parent’s Fund for Academic Excellence Travel Grant .............. 2012 and 2013

Work and Volunteer Experience

• **Cornell University** Ithaca, New York
  **Teaching Assistantships**
  – Machine Learning for Data Science (CS4786) under professors Lillian Lee and Karthik Sridharan [Spring 2015]
  – Intro to Computer Graphics (CS4620) under professor Steve Marschner [Fall 2014]

• **Cornell University Public Service Center** Ithaca, New York
  **Computer Science Education Volunteer** Fall 2014
  – Volunteered once per week teaching 2-5th grade students how to code using Code.org

• **Washington University** St Louis
  **NSF REU Researcher** Summer 2013
  – Helped to implement GPU version of a fast SVM solver as part of a National Science Foundation REU program.

• **Carleton College** Northfield, Minnesota
  **Computer Science Grader** Fall 2011
  – Introduction to Computer Science and Life in the Age of Networks under professor David Liben-Nowell

Technical Skills

• **Machine Learning Skills:** Various machine learning/statistical toolkits/languages (e.g. sklearn, deep learning libraries (e.g. Keras), Mallet, R, etc.). Experience working with very large, multi-faceted datasets. Work at all levels of the ML pipeline from preprocessing, to task definition, to feature engineering/learning, to model design/validation.

• **Development Skills:** Object-oriented programming (Python, Java, C++), parallel programming experience on CPUs/Nvidia GPUs, experience with various languages, development environments, version control systems, operating systems; ability to pick up new ideas quickly