

# Mike Wu

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EDUCATION        **Yale University**, New Haven, CT  
                      *B.Sc. in Computer Science*

- Distinction in Computer Science
- Yale College Council: Science/Engineering Committee

**University of Oxford**, Oxfordshire, Oxford  
*Visiting student in Computer Science*

- Computer Science Mark: First
- Oxford Computing Society
- Coursework in machine learning and learning theory

RESEARCH        **Stanford University**, Stanford, CA  
EXPERIENCE       *Ermon Lab, Volodymyr Kuleshov*

- Research combining neural variational inference learning with Markov random fields (In Progress).

**Harvard University**, Cambridge, MA  
*Doshi-Velez Lab, Finale Doshi-Velez*

- Research building an autoregressive switching state model to learn unsupervised temporal patterns in ICU patient data (2015).
- Research combining recurrent neural networks and hidden Markov models to make a sparse, interpretable RNN (2016).

**Yale University**, Cambridge, MA  
*Cisewski Lab, Jessi Cisewski*

- Research creating topological hypothesis tests for comparing the shapes of large-scale structures like the observable Universe.

**University of Oxford**, Oxfordshire, Oxford  
*Wood Lab, Frank Wood*

- Research developing a probabilistic inference engine in a spreadsheet.

**UCSD**, San Diego, CA  
*Trivedi Lab, Brendan Morris*

- Research using optical flow and Hough transforms for vehicle classification.

INDUSTRY        **Lattice**, Palo Alto, CA ([lattice.io](http://lattice.io))  
EXPERIENCE       *Software Engineer*  
                      Externship developing NLP pipeline using DeepDive to convert unstructured text to a database of semantic relationships.

**Invrea**, Oxfordshire, Oxford (invrea.com)

*Co-Founder*

A venture I started with Yura Perov and Prof. Frank Wood for a native Excel modeling tool built on our inference engine.

- Featured in *Talking Machines* podcast.

**Ionis Pharmaceuticals**, Carlsbad, CA

*Data Science Intern*

Worked with Chris Hart on an SVM to map oligonucleotide target sites to antisense drug success rates.

**King George Mini Storage**, King George, VA

*Front-end Engineer*

Developed a web application for advertising storage services.

TEACHING  
EXPERIENCE

**Yale School of Management**, New Haven, CT

*MGT656: Management of Software Development*, Kyle Jensen

**Yale Dept. of Computer Science**, New Haven, CT

*CPSC 437/537: Operating System Concepts*, Avi Silberschatz

MACHINE  
LEARNING  
PUBLICATIONS

Mike Wu, Viktoriya Krakovna, Michael Hughes, Finale Doshi-Velez. *Increasing the Interpretability of Recurrent Neural Networks Using Hidden Markov Models*. (In Preparation).

Mike Wu, Jessi Cisewski. *Topological Hypothesis Tests for the Large-Scale Structure of the Universe* JCGS 2016 (Under Review).

Marzyeh Ghassemi, Mike Wu, Michael Hughes, Finale Doshi-Velez. *Predicting intervention onset in the ICU with switching state space models* AMIA 2016 (Under Review).

Mike Wu, Marzyeh Ghassemi, Finale Doshi-Velez, et.al. *Understanding vaso-pressor intervention and weaning: Risk prediction in a public heterogeneous clinical time series database*. JAMIA 2016.

Mike Wu, Yura Perov, Frank Wood, Hongseok Yang. *Spreadsheet Probabilistic Programming*. ArXiv 2015.

Mike Wu. *Financial Market Prediction* ArXiv 2015.

COMPUTER  
VISION  
PUBLICATIONS

Madhu Krishnan, Mike Wu, Young Kang, Sarah Lee. *Autonomous Mapping and Navigation Through Utilization of Edge-Based Optical Flow and Time-to-Collision*. CISSE 2014.

Mike Wu, Madhu Krishnan. *Edge-based Crowd Detection from Single Image*

*Datasets*. IJCSI 2013.

SELECTED  
AWARDS

Qualcomm QLiving University Scholarship

- Value: \$2,500. Awarded to 100 undergraduates based on academics.

XSEDE 2011 Best Student Poster

- *Position and Vector Detection of Blind Spot motion with Optical Flow*

HackMIT 2015 Top 8 Hacks, Dropbox API 1st Place

- Value: \$5,000. Selected by judges for one of best 8 hacks in 36 hours.

Siemens 2012 Competition Semifinalist

Intel 2011, 2012 ISEF Finalist, 3rd place

- ACM, US Air Force, Sigma Xi, SDSC, Human Factors ISEF Awards

OUTREACH  
EXPERIENCE

**YHack**, New Haven, CT (yhack.org)

*Co-Founder*

Started an international Hackathon with over 4,000 applicants and 50 corporate sponsors each year intended to promote project-based learning for CS.

**CodeBoola**, New Haven, CT (codeboola.yhack.org)

*Co-Founder*

A high school *learnathon* intended to teach high school students web programming and computational thinking. 300 annual participants.

**Yale Technology Summit**, New Haven, CT

*Co-Organizer*

Helped Yale IT fundraise and plan logistics for a yearly technology conference.

SOFTWARE  
PROJECTS

**Ada**

<https://github.com/mhw32/Adaware>

A graph-based approach to extract semantically meaningful representation of multi-documents based on our NLP toolkit built on deep learning.

**Penpal** (penpallabs.com)

<https://github.com/mhw32/Tremors>

A stabilizing writing utensil specially designed to improve the lives of those with Essential Tremor, Parkinson's Disease, or other motion disorders.

**RAMbrandt**

<https://github.com/mhw32/RAMbrandt>

Pixel-level autoregressive generative model to learn a transition model to create modern art pieces trained on Pollock's and Legarde's work.

SOFTWARE  
TOOLS

Python, R, VBA, MATLAB, Ruby, Lua, C, Clojure, Arduino  
RoR, Node, Angular, Flask, HTML/CSS, Javascript, *L<sup>A</sup>T<sub>E</sub>X*

Autograd, Theano, Torch, Keras, Tensorflow, Numpy, Sklearn

REFERENCES      Finale Doshi-Velez, Assistant Professor, Department of Computer Science,  
Harvard University. [finale@seas.harvard.edu](mailto:finale@seas.harvard.edu)

Frank Wood, Associate Professor, Department of Engineering,  
University of Oxford. [fwood@robots.ox.ac.uk](mailto:fwood@robots.ox.ac.uk)

Jessi Cisewski, Assistant Professor, Department of Statistics,  
Yale University. [jessica.cisewski@yale.edu](mailto:jessica.cisewski@yale.edu)