

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)
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

Teaching Assistant

MGT656: Management of Software Development, Kyle Jensen

Yale Dept. of Computer Science, New Haven, CT

Teaching Assistant

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, \LaTeX Autograd, Theano, Torch, Keras, Tensorflow, Numpy, Sklearn
REFERENCES	Finale Doshi-Velez, Assistant Professor, Department of Computer Science, Harvard University. <code>finale@seas.harvard.edu</code> Frank Wood, Associate Professor, Department of Engineering, University of Oxford. <code>fwood@robots.ox.ac.uk</code> Jessi Cisewski, Assistant Professor, Department of Statistics, Yale University. <code>jessica.cisewski@yale.edu</code>