# Hörmet Yiltiz

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## Education

**Ph.D.**, *New York University*, Cognition & Perception — New York
Key courses: Deep Learning, Foundations of Machine Learning, Machine Learning, Data Simulation and Analysis, Bayesian Modeling of Behavior, Neuroeconomics and Decision-Making, Perception. — *2020 (expected)*

**B.S.**, *Peking University*, Experimental Psychology — Beijing
Key courses: Introduction to Computation, Data Structures and Algorithms, User Experience Seminar, Industrial and Organizational Psychology. — *2014*

## Professional/Research experience

**Researcher and project leader**, *NYU*, Modeling Human Visual Adaptation. — New York
Built bio-plausible feedforward and recurrent neural networks and experimentally confirmed their predictions. Leading a team extending the model to visual crowding. — *2016–*

**Sysadmin, project manager and activist**, NeuroDebian Project, neuro.debian.org. — Multinational
Got funding and support from 6 academic organizations and 2 communities and brought the project into China, doubling the supporters/sponsors of the project. — *2015–*

**Full Stack Web Dev and Sysadmin**, International Multisensory Research Forum 2016 (IMRF 2016). — Beijing
Set up and maintained the conference website that supports payment, manuscript submission and peer reviews. — *2015–2018*

**Researcher and project leader**, *NYU*, A clinical test for crowding. — New York
Led a team to show visual crowding in the fovea, where it's widely believed not to exist. — *2015–2016*

### Selected papers and abstracts

Yiltiz, H., Heeger, D. & Landy, M. (2018). Contingent adaptation in masking and surround suppression. *Journal of Vision*, 18, 259.

Yiltiz, H., & Pelli, D. G. (2017). Noise masking and crowding reveal two very different kinds of spatial integration. *JoV*, 17(10):802.

Pelli, D., ... Yiltiz, H. (2016). A clinical test for visual crowding. *F1000Research*, 5:81.

### Skills

**Languages, libraries, tools**: Python, R, MATLAB, Haskell, C, Shell, JavaScript, HTML/CSS, SQL, Go; Pytorch, Numpy, pandas, skikit-learn, matplotlib, tidyverse, ggplot2, libsvm, OpenGL; GNU/Linux, Nginx, Git, slurm, AWS.

**Domain knowledge**: Machine learning, deep learning, Bayesian modeling, MCMC, image/signal processing, PDE, linear systems, information theory, high performance computing, optimization, library design, unit tests, virtualization.

### Selected projects — available on Github at hyiltiz/<project-name>.

**Adaboost.Sampled**: Invented an ensemble method algorithm with ten times faster convergence than AdaBoost. Implemented from the scratch and tested in predicting breast cancer and diabetes.

**canonNet**: A library implementing a novel context-dependent online-learning algorithm to model one of the canonical computations of the brain: normalization. Unpublished, available on request.

**MVC-Psych**: A Model-View-Control inspired framework for scientists to streamline experiment design, data collection, and analysis. Unpublished, available on request.

**bocd**: Bayesian Online Change Detection framework for online probabilistic inference of hidden state changes. Tested to predict mice's beliefs about future in reinforcement learning. Unpublished, available on request.

**vim-plugins-profile**: Profile Vim's plugins to visualize startup time statistics to help guide workflow optimization. Implemented in Python, R, Ruby, Bash and Awk.

**batchFilter**: A toolbox with GUI interface for non-programmers to automate analyzing data with shared structure.

**NoiseDiscrimination**: Systematically compared human performance in letter recognition to algorithmic ideal performance.

**PLW**: A toolbox for biological motion research supporting images, sounds and touch stimuli, and real-time visualization.

**wormy**: Invented a shuffle/arrangement game and implemented along with its solver for console in Python.