

Felix Yu

4 Lawrence Dr. Apt 102 · Princeton · NJ 08540 | felixy@princeton.edu | (832) 922-8592

EDUCATION

2018-Curr	Princeton University <i>Ph.D. Candidate, Computer Science</i>	<i>Princeton, NJ</i>
2014-2018	Johns Hopkins University <i>Graduated May 2018</i> <i>B.S., Computer Science; B.S., Biomedical Engineering</i> Dean's List All Semesters	<i>Baltimore, MD</i> <i>GPA: 3.96/4.00</i>

RESEARCH EXPERIENCE

Sep 2019 – Curr	Russakovsky Lab (Computer Vision) - <i>Graduate Research Assistant, Princeton University</i> <ul style="list-style-type: none">Discovered priors in the Vision-and-Language Navigation Room-to-Room Dataset that caused existing methods to overfit to known scenes, and showed that removing these priors led to better generalization to unseen environments. Short paper accepted as oral presentation in VL3 Workshop of CVPR 2020.
Dec 2018 – Sep 2019	Heide Lab (Computational Imaging) - <i>Graduate Research Assistant, Princeton University</i> <ul style="list-style-type: none">Designed learning based pipeline to automatically tune hardware parameters in imaging systems to capture "optimal" images. Demonstrated that proposed method succeeds in a variety of use cases. Paper accepted into ACM SIGGRAPH 2019.Assisting in creating end-to-end learning based method to co-optimize the phase profile of a metalens as well as the subsequent image reconstruction to achieve achromatic natural imaging.
Sep 2017 – May 2018	Reiter Lab (Computer Vision) - <i>Research Assistant, Johns Hopkins University</i> <ul style="list-style-type: none">Collaborated with Dr. Satyanarayana Vedula and the Johns Hopkins Hospital to classify phases of cataract surgery using learned spatio-temporal features and crowdsourced tool annotations. Paper accepted into JAMA Network Open Journal.
June 2015 – May 2018	Beer Lab (Computational Genomics) - <i>Research Assistant, Johns Hopkins University</i> <ul style="list-style-type: none">Assisted in creating an algorithm to summarize motifs found in high dimensional gapped k-mer features into easily interpretable position weight matrices.Compared machine learning approaches such as deep learning, support vector machines and Bayesian models in their efficacy to predict impacts of mutations in regulatory regions of the genome.
June 2016 – Aug 2016	Battle Lab (Computational Transcriptomics) - <i>Research Intern, Johns Hopkins University</i> <ul style="list-style-type: none">Modified an existing expectation-maximization learning model to that the predictive power of protein isoform ratios is comparable to that of gene expression values in finding rare mutations.

PUBLICATIONS

June 2020	F. Yu* , et. al. <i>Take the Scenic Route: Improving Generalization in Vision-and-Language Navigation</i> . Visual Learning with Limited Labels Workshop of CVPR 2020; June 14 - June 19, 2020; Virtual. Oral presentation given at workshop.
July 2019	E. Tseng*, F. Yu* , et. al. <i>Hyperparameter Optimization in Black-box Image Processing using Differentiable Proxies</i> . SIGGRAPH 2019; July 28 - August 1, 2019; Los Angeles CA. Oral presentation given at conference.
Apr 2019	F. Yu , et. al., <i>Assessment of Automated Identification of Activities in Videos of Cataract Surgery Using Machine Learning and Deep Learning Techniques</i> . JAMA Network Open; April 4 2019.

* denotes equal contribution

CONFERENCE PRESENTATIONS

- Nov 2017 | **F. Yu**, D. Shigaki, M. Beer, *Reducing gkm-SVM features through PWM extraction*. Poster presented at: 10th Annual RECOMB/ISCB Conference on Regulatory and Systems Genomics; Nov. 19-21 2017; New York City NY.
- Aug 2016 | **F. Yu**, D. Lee, A. Mo, J. Nathans, M. Beer, *Comparative assessment of training data and computational methods for predicting cell-type specific enhancer activity and the impact of regulatory mutations*. Poster Presented at: 29th Annual Cold Spring Harbor Laboratory Biology of Genomes Meeting; May 10-14 2016, Cold Spring Harbor NY
- Nov 2015 | **F. Yu**, D. Lee, M. Beer, *Comparison of methods to predict impact of regulatory variants*. Poster presented at: 8th Annual RECOMB/ISCB Conference on Regulatory and Systems Genomics; Nov. 15-18 2015; Philadelphia PA.

AWARDS/FELLOWSHIPS

- April 2018 | **NSF GRFP** - Honorable Mention

WORK EXPERIENCE

- Jan 2019 – July 2019 | **AI4ALL Princeton** - *Lead Research Instructor*
- Recruited and led a team of instructors to educate high schoolers of underrepresented minorities in STEM the fundamentals of artificial intelligence over a three week period. Coordinated and designed both classroom lectures and overarching project of detecting melanoma from skin lesions.
- May 2018 – Aug 2018 | **Facebook** - *Software Engineering Intern, Ads Ranking Infra Team*
- Explored and adapted the vanilla Neural Architecture Search algorithm for the use case in the Ads Ranking team to find high performing model architectures.
- May 2017 – Aug 2017 | **Integrity Applications Incorporated** - *Engineering Intern, Medical Imaging Team*
- Developed an easily modifiable user interface using MATLAB that allows for flexible design of image reconstruction chains to robustly test various image cleaning algorithms
- Jan 2017 – May 2017 | **Johns Hopkins University** - *Teaching Assistant, 580.223 Models and Simulations*
- Engaged students in learning the impact of differential equation models, both linear and non-linear, in a biological setting by condensing lecture materials and holding recitation and review sessions.
Awarded David T. Yue Memorial Award for outstanding performance in teaching.

OTHER PROJECTS

- Mar 2017 – May 2017 | **Comparison of Clustering Algorithms for Classifying Breast Cancer Types**
- Tested the ability of K-means clustering, Gaussian mixture models, and spectral clustering with RBF kernel to separate out four distinct breast cancer classes from the Kaggle Breast Cancer Proteomes dataset.
- Dec 2014 – May 2015 | **Regulaire, JHU Center for Bioengineering Innovation & Design**
- Collaborated with a team of undergraduates to create a fuzzy logic algorithm aimed to regulate the amount of oxygen delivered to premature infants. Hardware prototype matched actions of a nurse with over 60% accuracy.

SKILLS

- Languages:** Proficient in Java, C, C++, Python, MATLAB, R, L^AT_EX; Familiar with Javascript, HTML/CSS
- Packages:** Python – Proficient with Keras, Pytorch, Tensorflow, Caffe2, Scikit-Learn. R – Proficient with glmnet, kernlab
- Technologies:** Proficient in Unix, Git; Familiar with Google Cloud, Amazon Web Services