

Zijie (Jay) Wang

756 West Peachtree Street S1349F, Atlanta, GA 30308, United States
jayw@gatech.edu | <https://zijie.wang>

RESEARCH INTERESTS

Machine Learning interpretability, fairness, security, and visual analytics.

EDUCATION

Aug 2019 to Present	Georgia Institute of Technology , Atlanta, GA Ph.D. in Machine Learning Advisor: Polo Chau
Sept 2015 to May 2019	University of Wisconsin–Madison , Madison, WI Bachelor of Science (B.S.) Majors: Computer Sciences (Honors), Statistics (Honors), Mathematics Overall GPA: 3.95/4.00

PUBLICATIONS

1. **Zijie J. Wang**, Alex J. Walsh, Melissa C. Skala, Anthony Gitter. [Classifying T cell activity in autofluorescence intensity images with convolutional neural networks](#). *Journal of Biophotonics* 2019.
2. **Zijie J. Wang**, Alex J. Walsh, Melissa C. Skala, Anthony Gitter. [Classifying T cell activity with convolutional neural networks](#). (Poster presented in *ISCB GLBIO 2019*)
3. **Zijie J. Wang**, Tiffany M. Heaster, Quan Yin, Alex J. Walsh, Melissa C. Skala, Anthony Gitter. [Using Transfer Learning to Classify Breast Cancer Cells with Fluorescence Imaging](#). (Poster presented in *UW-Madison Undergraduate Symposium 2018*)

INVITED TALKS

1. **Zijie J. Wang**, Tiffany Heaster, Quan Yin, Alex J. Walsh, Melissa C. Skala, Anthony Gitter. [Classifying T cell activity with convolutional neural networks](#). (Presented in *UW-Madison Senior Honors Thesis Symposium 2019*)

AWARDS AND GRANTS

May 2019	University Book Store Academic Excellence Award (\$1000) An award recognizing undergraduate students who have completed an outstanding independent project, such as a senior thesis, at the University of Wisconsin–Madison
June 2018	Honors Senior Thesis Summer Research Grant (\$3000) A research grant funding students to undertake more demanding and extensive senior thesis research projects
June 2017	Welton Summer Sophomore Apprenticeship (\$2500) A research grant awarded to talented students to participate in actual, cutting-edge research

RESEARCH EXPERIENCE

Sept 2019 to Present Atlanta, GA	<i>PhD Researcher</i> at Georgia Tech Mentor: Polo Chau MLSPLOIT <ul style="list-style-type: none">• Cloud-based platform that enables researchers and students to rapidly evaluate and compare state-of-the-art adversarial attacks and defenses for machine learning models• Design and develop visualization techniques to compare different adversarial attacks and defenses CNN 101 <ul style="list-style-type: none">• Design and develop educational tools to teach CNN to college students• Explore interactive techniques to make education engaging and effective
Dec 2018 to June 2019 Madison, WI	<i>Undergraduate Researcher</i> at UW–Madison Computer Science Mentor: Michael Gleicher RECOMMENDERVIS <ul style="list-style-type: none">• Design a visual analytics tool for recommender system researchers• Interactively visualize user-item rating matrix with statistics-conditioned sub-sampling to spot abnormal ratings and predictions
Dec 2017 to Aug 2019 Madison, WI	<i>Undergraduate Researcher</i> at Morgridge Institute for Research Mentor: Anthony Gitter CELL IMAGE CLASSIFICATION <ul style="list-style-type: none">• Classify T-cell and breast cancer cell types using fluorescent images• Compare and analyze various classifiers: logistic regression, fully connected neural network, convolutional neural network and transfer learning• Interpret feature representations from different learning layers in the transfer learning model CELL PAINTING AND DRUG DISCOVERY <ul style="list-style-type: none">• Analyze about 1 million 5-channel cell-painting images of bone tumor cells• Explore latent space between the image space and chemical molecule space• Study how to remove batch effects of microscopy images at scale
Feb 2017 to Dec 2017 Madison, WI	<i>Research Assistant</i> at UW–Madison ECE Department Mentor: Yu Hen Hu VIDEO OBJECT TRACKING <ul style="list-style-type: none">• Study how to track car driver’s head position and orientation from low-quality traffic video• Develop semi-automatic video annotation software with Viola-Jones frontal face detector for training object tracking algorithms FACIAL REENACTMENT <ul style="list-style-type: none">• Implement real-time face tracking algorithms on iOS devices• Train a facial reenactment model using GANs and port it to iOS devices

COURSEWORK

Computer Science:	Deep Learning, Artificial Intelligence, Computer Graphics, Operating System, Algorithm, Data Structure, Optimization Modeling, Database
Statistics:	Mathematical Statistics, Multivariate Analysis, Experiment Design
Mathematics:	Nonlinear Optimization, Real Analysis, Stochastic Processes, Probability Theory, Linear Algebra

TEACHING EXPERIENCE

Jan 2019 to May 2019 Madison, WI	<i>Undergraduate Teaching Assistant</i> at UW–Madison Computer Sciences <ul style="list-style-type: none">• Computer Graphics (CS 559) Spring 2019. Instructor: Michael Gleicher• Create course notes and weekly assignments• Host office hours and answer student questions on Piazza
Jan 2016 to Jan 2017 Madison, WI	<i>Tutor</i> at Greater University Tutoring Service <ul style="list-style-type: none">• Instruct peers one-on-one in programming and math problems for three hours weekly• Lead review sections to help students study for calculus exams
Nov 2016 to May 2017 Madison, WI	<i>Tutor</i> at Division of Diversity, Equity and Educational Achievement <ul style="list-style-type: none">• Mentor undergraduate students in DDEEA programs for Data Structure course• Every week design two worksheets and give detailed solutions

COURSE PROJECTS

Spring 2018	Group Assignment Optimization Instructor: Laurent Lessard <ul style="list-style-type: none">• Course project for Introduction to Optimization, selected as the best project• Design a mixed integer quadratic programming model to help Professor Ben Liblit improve group assignment in his Software Engineering class
Spring 2017	Madison Restaurant Yelp Ratings Prediction Instructor: Hyunseung Kang <ul style="list-style-type: none">• Course project for Applied Regression Analysis, won the in-class Kaggle Challenge• Use Yelp comment texts to predict the categorical rating• Explore multiple models including neural network with GloVe word representation

SKILLS

Programming:	Python, R, JavaScript, Julia, Swift, C++, C, SQL, \LaTeX
Packages:	Keras, PyTorch, Tensorflow, D3.js, scikit-learn, OpenCV, CellProfiler
Design:	Affinity Designer, Sketch, OmniGraffle, Illustrator