Jieun Seong

✉ jieun.thinks@gmail.com   ★ jieun-seong.github.io   ☎ (404) 667-6952

○ github.com/jieun-seong   ○ github.gatech.edu/jseong8   in linkedin.com/in/jieun-seong/

Education		
MS in Comp. Sci. and Engineering @ Georgia Tech, *GPA: 3.60/4.00*		2020 – Present
MS in Mathematics @ Georgia Tech, *GPA: 3.80/4.00*		2017 – 2019
BS in Discrete Mathematics @ Georgia Tech, *GPA: 3.92/4.00*		2013 – 2017

Research

Differentiability at the Tip of Arnold Tongues   2019 – 2021

Proved analytically the differentiability at the tip of the Arnold Tongue – the set of parameters in the standard map equation that gives a given rotation number. Used C and Julia to carry out numerical experiments to research the differentiability.

Skills

Programming

C/C++, Python, MATLAB, Julia, Java, TeX, PyTorch, SciPy, OpenCV, Git, Colab, Linux, Unity

Knowledge

Computer Vision, Dynamical Systems, Differential Equations, Numerical Analysis, Linear Algebra, Parallel Computing, Algorithms, Data Structures, Machine Learning, Data Analysis, Optimization, Modeling and Simulation, Deep Learning

Projects

Semantic Segmentation of Images with Deep Learning

Implemented Pyramid MaxPooling to semantically segment different objects in images from Camvid and Kitti datasets with PyTorch.

MNIST Handwriting Recognition

Implemented a simple softmax regression and two-layer multi-layer perceptron (MLP) for MNIST Handwriting Recognition from scratch.

Differential Growth: Modeling and Simulation

Modeled and simulated the exquisite growth patterns found in nature – plant leaves, coral reefs, cabbage, brain, and fingerprints.

ConvNet for CIFAR-10

Built a two-layer network from scratch and built a two-layer network and a vanilla convolutional neural network using PyTorch.

SIFT Local Feature Matching

Implemented Harris Corner Detectors, Local Feature Descriptors, and Feature Matching methods to match points in two images of an object.

Camera Calibration and Fundamental Matrix Estimation

Estimated the camera projection matrix and fundamental matrix given matching points in two images.

Style Transfer

Applied a SqueezeNet to produce a new image that reflects the content of one but the "artistic" style of the other. Used PyTorch.

Network Visualization

Implemented Saliency Maps and Gradient Class Activation Mapping (GradCAM) for model interpretability on images. Used PyTorch.

Source Separation

Modified the modules inside Open-Unmix music source separation model to better its performance in separating different sources in music.

Experiences	**Graduate Teaching Assistant**	2017 – Present
	Georgia Institute of Technology	Atlanta, GA

Teach 30-60 students every semester on college math subjects like linear algebra, multivariable calculus, and differential equations. Evaluate their performances regularly by collaborating with other instructors and teaching assistants on grading quizzes, projects, and exams. Hold weekly office hours to help students who want extra help.

Digital Systems Design Lab Assistant	2014 – 2015
Georgia Institute of Technology	Atlanta, GA

Prototype Designer / App Developer	Atlanta, GA
OshKosh B'gosh	2014 – 2015

Designed and produced a prototype for a speaker. Built speaker with SolidWorks, 3D printer, soldering, and circuit design. Developed an app to be used for the speaker with AppInventor.

Awards	**Georgia Tech President's Undergraduate Research Award $1,500**	2016

Outreach	**Leader of Women in Georgia Tech Korean Student Association**	2018 – 2019
	Secretary of Georgia Tech Korean Student Association	2017 – 2019
	Volunteer at Korea Methodist Church of Norcross Food Pantry	2014 – 2015
	Women in Electrical and Computer Engineering	2014 – 2015
	Study Abroad in China - "Language for Business and Technology: China"	2015