

# Haekyu Park

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Education	<b>Ph.D., Computer Science</b> Georgia Institute of Technology, Atlanta, GA Advisor: Dr. Polo Chau	Aug 2018 - Present
	<b>B.S., Computer Science and Engineering</b> Seoul National University, Seoul, Republic of Korea Graduated with honors (Cum Laude)	Mar 2012 - Aug 2017
Research Experience	<b>Data Science Intern</b> NVIDIA, Austin, TX Mentor: Bartley Richardson, Brad Rees, Joe Eaton Internship results integrated into and presented at <a href="#">NVIDIA's KDD 2019 tutorial</a> .	May 2019 - Aug 2019
	<b>Graduate Research Assistant</b> Georgia Institute of Technology, Atlanta, GA	Aug 2018 - Present
	<b>Undergraduate Research Assistant</b> Seoul National University, Seoul, Republic of Korea	June 2016 - Aug 2017
Grants and Honors	<b>Amazon AWS Research Grant</b> Co-PIs: Nilaksh Das, Scott Freitas, Duen Horng Chau Funded \$5,000 in AWS cloud credits	2018
	<b>National Scholarship For Science and Engineering</b> Merit-based	2015
Publications	<b>Summit: Scaling Deep Learning Interpretability by Visualizing Activation and Attribution Summarizations</b> Fred Hohman, <a href="#">Haekyu Park</a> , Caleb Robinson, Duen Horng Chau IEEE VIS (VAST), 2019. <a href="#">[PDF]</a> <a href="#">[Demo]</a>	
	<b>MLsploit: A Framework for Interactive Experimentation with Adversarial Machine Learning Research</b> Nilaksh Das, Siwei Li, Chanil Jeon, Jinho Jung, Shang-Tse Chen, Carter Yagemann, Evan Downing, <a href="#">Haekyu Park</a> , Evan Yang, Li Chen, Michael Kounavis, Ravi Sahita, David Durham, Scott Buck, Duen Horng Chau, Taesoo Kim, Wenke Lee Knowledge Discovery and Data Mining (KDD) Workshop - Project Showcase, 2019. <a href="#">[PDF]</a>	
	<b>NeuralDivergence: Exploring and Understanding Neural Networks by Comparing Activation Distributions</b> <a href="#">Haekyu Park</a> , Fred Hohman, Duen Horng Chau Poster, IEEE Pacific Visualization Symposium (PacificVis), 2019. <a href="#">[PDF]</a> <a href="#">[Demo]</a>	
	<b>SIDE: Representation Learning in Signed Directed Networks</b> Junghwan Kim, <a href="#">Haekyu Park</a> , Ji-Eun Lee, and U Kang The Web Conference (WWW), 2018. <a href="#">[PDF]</a>	
	<b>A Comparative Study of Matrix Factorization and Random Walk with Restart in Recommender Systems</b> <a href="#">Haekyu Park</a> , Jinhong Jung, and U Kang IEEE Big Data, 2017. <a href="#">[PDF]</a>	

Talks and  
Presentations

**NeuralDivergence: Exploring and Understanding Neural Networks by Comparing Activation Distributions**  
Apr 2019, Poster Presentation, PacificVis

**A Comparative Study of Matrix Factorization and Random Walk with Restart in Recommender Systems**  
Dec 2017, Oral Presentation, IEEE Big Data

Teaching

**Graduate Teaching Assistant**

Fall 2019

Georgia Institute of Technology, Atlanta, GA  
Data and Visual Analytics (CSE 6242)

Designed homeworks, held weekly office hours, and mentored student team projects for 264 students.  
Instructor: Polo Chau

Open-source  
Research Projects

**Summit: Scaling Deep Learning Interpretability by Visualizing Activation and Attribution Summarizations**  
Summit is an interactive visualization that scalably summarizes what features a deep learning model has learned and how those features interact to make predictions. It is published at IEEE VIS (VAST), 2019.

**MLsploit: A Framework for Interactive Experimentation with Adversarial Machine Learning Research**  
MLsploit is a user-friendly, cloud-based system that enables researchers and practitioners to rapidly evaluate and compare state-of-the-art adversarial attacks and defenses for machine learning (ML) models. It is published at Knowledge Discovery and Data Mining (KDD) Workshop - Project Showcase, 2019.

**SIDE: Representation Learning in Signed Directed Networks**

SIDE is a general network embedding method that represents both sign and direction of edges in the embedding space. It is published at the Web Conference (WWW), 2018.

**A Comparative Study of Matrix Factorization and Random Walk with Restart in Recommender Systems**  
We provide a comparative study of matrix factorization and RWR, which are the most representative recommender systems. It is published at IEEE Big Data, 2017.

Projects

**RAPIDS and Cybersecurity: A Network Use Case**

2019

Keywords: RAPIDS, NVIDIA, GPU-acceleration, Graph, Personalized Page Rank  
Presented at [KDD 2019 NVIDIA RAPIDS tutorial](#) with the [cybersecurity use case notebook](#).

**Explore the history of space and interplanetary travel through a visualization of space data**

2018

Keywords: Information Visualization, Scrollytelling, d3.js  
<https://psy901.github.io/space-mission-project/>

**Recommender System for Videos on Oksusu Application**

2017

Keywords: Deep Learning, Sequence/Word Embedding, Approx. k-NN, Heterogeneous Features  
SK Telecom, Seoul, Republic of Korea

**A Fast Data Compression with Shared Virtual Memory in Heterogeneous System Architecture**

2017

Keywords: OpenCL, GPGPU, SVM, HSA  
Undergraduate thesis

**Personalized Recommendation for Credit Card Rewards**

2016

Keywords: Coupled Matrix Factorization, Time Series Data  
Hyundai Card, Seoul, Republic of Korea

Skills

**Programming Languages**

Python, JavaScript, HTML, R, Matlab, Java, C, C++, Ocaml, Scheme

**Machine Learning / Deep Learning / Data Science**

TensorFlow, Keras, scikit-learn, OpenCV, Numpy, Pandas, SciPy, NetworkX

**GPU-accelerated Data Science**

cuGraph, cuDF, cuML, BlazingSQL, OpenCL

**Data Visualization**

D3.js, HoloViews, Matplotlib, WebGL, ggplot

## Professional Service

### **Reviewer**

WiML 2019

KDD 2019

ICML 2019

### **Professional Membership**

The Institute of Electrical and Electronics Engineers (IEEE). Since 2019.