

# Seongmin Lee

*CS PhD student at Georgia Tech*

My research bridges machine learning and human-computer interaction to advance **Responsible AI**. I design and develop **novel visual explanations** for complex machine learning models, and **scalable algorithms** that promote accountable use of AI.

I have collaborated with researchers and developers at JP Morgan Chase & Co., Cisco Systems, Google, IBM Research, ADP, and AVAST Software.

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🌐 @ligi214  
🎓 Google Scholar

## Education

Aug. 2021 — Present

### **Ph.D. in Computational Science & Engineering**

Georgia Institute of Technology, Atlanta, GA

Advisor: Duen Horng (Polo) Chau

Mar 2016 — Feb. 2021

### **B.S. in Electrical and Computer Engineering**

Seoul National University, Seoul, South Korea

Graduated with Summa Cum Laude, Overall GPA: 3.91/4.00, Major GPA: 3.94/4.00

Mar 2013 — Feb. 2016

### **Math and Science Specialized High School for Gifted**

Korea Science Academy of KAIST, Busan, South Korea

One year early entrance, Graduated with distinction in GPA

## Research Experience

May 2024 — Aug. 2024

### **JP Morgan Chase & Co., New York, NY**

*Summer Associate, Research Technologies Program*

Mentor: Hsiang Hsu, Chun-Fu (Richard) Chen

May 2022 — Jul. 2022

### **Cisco Systems, Inc., San Jose, CA**

*Ph.D. Intern*

Mentor: Ali Payani

Led model interpretation and visualization development for an open-source project for Responsible AI

Aug. 2021 — Present

### **Georgia Institute of Technology, Atlanta, GA**

*Graduate Research Assistant, School of Computational Science and Engineering*

Advisor: Duen Horng (Polo) Chau

Jan. 2020 — Feb. 2021

### **Seoul National University, Seoul, South Korea**

*Undergraduate Research Intern, Data Mining Lab*

Advisor: U Kang

Sep. 2019 — Apr. 2020

### **Seoul National University, Seoul, South Korea**

*Undergraduate Research Intern, Communication and Machine Learning Laboratory*

Advisor: Jungwoo Lee

Jul. 2018 — Aug. 2018

### **The University of Tokyo, Tokyo, Japan**

*Undergraduate Research Intern, Biomedical Precision Laboratory*

Advisor: Keiichi Nakagawa, Ayumu Ishijima

Constructed a microscopic motion-picture laser camera with sub-nano spatial/temporal resolution, Investigated interaction between human cells and acoustic waves in collaboration with students majoring in biology and physics

# Honors and Awards

2024	<b>IEEE BigData Student Travel Award</b> Selected as a recipient of the Student Travel Award.
2024	<b>NeurIPS SoLaR Workshop Travel Fund Award</b> Selected as a recipient of the travel fund award of \$1,800 for the NeurIPS SoLaR Workshop.
2024	<b>Best Poster Award</b> Transformer Explainer receives Best Poster Award at VIS 2024.
2023	<b>Next-generation Science and Technology Leader NET</b> Research grant of \$1,500 funded by KOFST. Conducted interdisciplinary research on 'Wearable Devices and AI to Enhance Sustainability and Reliability of Korean Healthcare Data' with 5 other students.
2021	<b>CS7001 Best Final Project Award Honorable Mention</b> Awarded for the project 'VisCUI: Visual Auditor for Bias in CNN Image Classifier' in CS7001, a course taken by all first-year CS Ph.D. students at Georgia Tech. 2nd place among 60+ presentations.
2016 - 2019	<b>The Presidential Science Scholarship</b> Full tuition and stipend of \$5,000 per year. Around 150 students are selected nationally.
2018 - 2019	<b>SNU Engineering Honor Society (STEM)</b> Used to be vice president, currently honorary member of STEM.
2017, 2018	<b>Seoul National University ECE Voluntary Service Award</b> Selected based on the evaluation of the students, staffs, and faculty members of department of ECE.
2014 - 2015	<b>Hansung Sonjaehan Scholarship</b> Stipend of \$5,000 per year. Around 150 high school students studying math and science are selected nationally.

# Publications

## LLM Attributor: Interactive Visual Attribution for LLM Generation

Seongmin Lee, Zijie J. Wang, Aishwarya Chakravarthy, Alec Helbling, ShengYun Peng, Mansi Phute, Duen Horng (Polo) Chau, Minsuk Kahng

*Demo, Annual AAAI Conference on Artificial Intelligence (AAAI). 2025.*

[🔗 Project](#) [📄 PDF](#) [🎥 Recording](#) [🔗 Code](#) [📖 BibTeX](#)

## Effective Guidance for Model Attention with Simple Yes-no Annotations

Seongmin Lee, Ali Payani, Duen Horng (Polo) Chau

*Oral Paper, IEEE International Conference on Big Data (BigData). 2024.*

[🔗 Project](#) [📄 PDF](#) [🔗 Code](#) [📖 BibTeX](#) [🏆 Student Travel Award](#)

## LLM Hallucination Reasoning with Zero-shot Knowledge Test

Seongmin Lee, Hsiang Hsu, Chun-Fu (Richard) Chen

*38th Conference on Neural Information Processing Systems (NeurIPS 2024) Socially Responsible Language Modelling Research Workshop (SoLaR). 2024.*

[🔗 Project](#) [📄 PDF](#) [📖 BibTeX](#) [🏆 SoLaR Workshop Travel Fund Award](#)

## Diffusion Explainer: Visual Explanation for Text-to-image Stable Diffusion

Seongmin Lee, Benjamin Hoover, Hendrik Strobelt, Zijie J. Wang, ShengYun Peng, Austin P. Wright, Kevin Li, Haekyu Park, Haoyang Yang, Duen Horng (Polo) Chau

*Short Paper, IEEE Visualization Conference (VIS). 2024.*

[🔗 Project](#) [▶ Demo](#) [📄 PDF](#) [🎥 Recording](#) [📄 Poster](#) [🔗 Code \(★221\)](#) [📖 BibTeX](#)

## Transformer Explainer: Interactive Learning of Text-Generative Models

Aeree Cho, Grace C Kim, Alexander Karpekov, Alec Helbling, Zijie J. Wang, Seongmin Lee, Benjamin Hoover, Duen Horng (Polo) Chau

*Poster, IEEE Visualization Conference (VIS). 2024.*

[🔗 Project](#) [▶ Demo](#) [📄 PDF](#) [🎥 Recording](#) [🔗 Code \(★3.1k\)](#) [📖 BibTeX](#) [🏆 Best Poster](#)

## **SuperNOVA: Design Strategies and Opportunities for Interactive Visualization in Computational Notebooks**

Zijie J. Wang, David Munechika, Seongmin Lee, Duen Horng (Polo) Chau

*Extended Abstracts on ACM Human Factors in Computing Systems (CHI)*. 2024.

[Project](#) [Demo](#) [PDF](#) [Code \(★62\)](#) [BibTeX](#)

## **UniTable: Towards a Unified Framework for Table Structure Recognition via Self-Supervised Pretraining**

ShengYun Peng, Seongmin Lee, Xiaojing Wang, Rajarajeswari Balasubramaniyan, Duen Horng (Polo) Chau

*ArXiv*. 2024.

[Project](#) [PDF](#) [Code \(★354\)](#) [BibTeX](#)

## **ClickDiffusion: Harnessing LLMs for Interactive Precise Image Editing**

Alec Helbling, Seongmin Lee, Duen Horng (Polo) Chau

*CVPR 2024 Workshop on AI for Content Creation Workshop (CVPR)*. 2024.

[Project](#) [PDF](#) [Code \(★65\)](#) [BibTeX](#)

## **Mobile Fitting Room: On-device Virtual Try-on via Diffusion Models**

Justin Blalock, David Munechika, Harsha Karanth, Alec Helbling, Pratham Mehta, Seongmin Lee, Duen Horng (Polo) Chau

*CVPR 24 Workshop on Virtual Try-On (CVPR)*. 2024.

[Project](#) [PDF](#) [BibTeX](#)

## **High-Performance Transformers for Table Structure Recognition Need Early Convolutions**

ShengYun Peng, Seongmin Lee, Xiaojing Wang, Rajarajeswari Balasubramaniyan, Duen Horng (Polo) Chau

*Oral Paper, Neural Information Processing Systems (NeurIPS) TRL Workshop (TRL)*. 2023.

[Project](#) [PDF](#) [Code](#) [BibTeX](#)

## **VisGrader: Automatic Grading of D3 Visualizations**

Matthew Hull, Vivian Pednekar, Hannah Murray, Nimisha Roy, Emmanuel Tung, Susanta Routray, Connor Guerin, Justin Chen, Zijie J. Wang, Seongmin Lee, Mahdi Roozbahani, Duen Horng (Polo) Chau

*Full Paper, IEEE Visualization and Visual Analytics (VIS)*. 2023.

[Project](#) [PDF](#) [Code](#) [BibTeX](#)

## **Concept Evolution in Deep Learning Training: A Unified Interpretation Framework and Discoveries**

Haekyu Park, Seongmin Lee, Benjamin Hoover, Austin Wright, Omar Shaikh, Rahul Duggal, Nilaksh Das, Judy Hoffman, Duen Horng (Polo) Chau

*Full Paper, ACM International Conference on Information and Knowledge Management (CIKM)*. 2023.

[Project](#) [PDF](#) [Code](#) [BibTeX](#) [DOI](#)

## **Explaining Website Reliability by Visualizing Hyperlink Connectivity**

Seongmin Lee, Sadia Afroz, Haekyu Park, Zijie J. Wang, Omar Shaikh, Vibhor Sehgal, Ankit Peshin, Duen Horng (Polo) Chau

*Short Paper, IEEE Visualization and Visual Analytics (VIS)*. 2022.

[Project](#) [Demo](#) [PDF](#) [BibTeX](#)

## **NOVA: A Practical Method for Creating Notebook-Ready Visual Analytics**

Zijie J. Wang, David Munechika, Seongmin Lee, Duen Horng (Polo) Chau

*Poster Paper, IEEE Visualization and Visual Analytics (VIS)*. 2022.

[Project](#) [Demo](#) [PDF](#) [Poster](#) [Code](#) [BibTeX](#)

## **VisCUIT: Visual Auditor for Bias in CNN Image Classifier**

Seongmin Lee, Zijie J. Wang, Judy Hoffman, Duen Horng (Polo) Chau

*Demo Paper, Conference on Computer Vision and Pattern Recognition (CVPR)*. 2022.

[Project](#) [Demo](#) [PDF](#) [Recording](#) [Code](#) [BibTeX](#)

### **MisVis: Explaining Web Misinformation Connections via Visual Summary**

Seongmin Lee, Sadia Afroz, Haekyu Park, Zijie J. Wang, Omar Shaikh, Vibhor Sehgal, Ankit Peshin, Duen Horng (Polo) Chau

*Extended Abstracts on ACM Human Factors in Computing Systems (CHI)*. 2022.

[Project](#) [Demo](#) [PDF](#) [BibTeX](#) [DOI](#)

### **Multi-EPL: Accurate Multi-source Domain Adaptation**

Seongmin Lee, Hyunsik Jeon, U Kang

*Public Library of Science (PLOS ONE)*. 2021.

[Project](#) [PDF](#) [Code](#) [BibTeX](#)

### **Unsupervised multi-source domain adaptation with no observable source data**

Hyunsik Jeon, Seongmin Lee, U Kang

*Public Library of Science (PLOS ONE)*. 2021.

[Project](#) [PDF](#) [Code](#) [BibTeX](#)

### **Auber: Automated BERT Regularization**

Hyun Dong Lee\*, Seongmin Lee\*, U Kang

*Public Library of Science (PLOS ONE)*. 2021.

[Project](#) [PDF](#) [Code](#) [BibTeX](#) \*Authors contributed equally

## Patent

### **Pruning Method for Attention Head in Transformer Neural Networks for Regularization and Apparatus Thereof**

Seongmin Lee, Hyun Dong Lee, U Kang

10-2020-0162397, 2020.

## Book

### **I Got to Wish to Go Engineering School**

SNU Engineering Honor Society (STEM)

*Megastudy Books*, 2021.

Wrote Part 3 "Life as a Lab Intern"

## Invited Talks

### **Expanding Your Career Canvas: Pitching Strategies for Diverse Audiences**

Aug 2024 Fostering Innovation in Rising Experts (FIRE) at United States-Korea Conference (UKC)

### **Diffusion Explainer: Diffusion Explainer: Visual Explanation for Text-to-image Stable Diffusion**

Nov 2023 Georgia Tech, School of CSE Recruiting Event

### **STEM Global Engineer Seminar**

May 2023 Seoul National University, SNU Engineering Honor Society (STEM)

### **MisVis: Explaining Website Reliability by Visualizing Hyperlink Connectivity**

Nov. 2022 Georgia Tech, School of CSE Recruiting Event

Mar. 2022 AVAST Software, Fake News Monthly Sync Up

### **Multi-Source Domain Adaptation with Pseudo-labels**

Jun. 2020 Seoul National University, AIIS Retreat

### **STEM Vision Mentoring**

Jul. 2019 Seoul National University, STEM Vision Mentoring

Organized and gave lectures on engineering for high school students. More than 700 students attended.

# Teaching

Spring 2024	<b>Graduate Teaching Assistant</b> <i>Georgia Institute of Technology, Atlanta, GA</i> Data and Visual Analytics (CSE6242), Instructor: Duen Horng (Polo) Chau, Mahdi Roozbahani Online course with 1201 graduate students enrolled.
Fall 2022	<b>Graduate Teaching Assistant</b> <i>Georgia Institute of Technology, Atlanta, GA</i> Data and Visual Analytics (CSE6242), Instructor: Duen Horng (Polo) Chau, Mahdi Roozbahani Online course with 1146 graduate students enrolled.
Jan. 2021	<b>Lab Session Lecturer</b> <i>LG Chem, Seoul, South Korea</i> Deep Learning Course
Nov. 2020	<b>Lab Session Lecturer</b> <i>SK Hynix, Seoul, South Korea</i> Deep Learning Course
Fall 2020, Fall 2019	<b>Undergraduate Student Tutor</b> <i>Seoul National University, Seoul, South Korea</i> Introduction to Algorithm Selected as tutor for two consecutive years based on interviews and academic performance
Spring 2017	<b>Undergraduate Student Tutor</b> <i>Seoul National University, Seoul, South Korea</i> Introduction to Physics I Selected as tutor based on academic performance

# Mentoring

Fall 2023 — Present	<b>Sri Ranganathan Palaniappan</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i>
Fall 2024 — Present	<b>Kunal Mohindra</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i>
Fall 2023 — Fall 2024	<b>Aishwarya Chakravarthy</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i>
Fall 2023 — Fall 2024	<b>Grace Kim</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i>
Fall 2023 — Fall 2024	<b>Alexander Karpekov</b> <i>M.S. in Computer Science, Georgia Institute of Technology</i> Now: CS Ph.D. at Georgia Institute of Technology
Fall 2023 — Fall 2024	<b>Aeree Cho</b> <i>M.S. in Computer Science, Georgia Institute of Technology</i> Now: ML Ph.D. at Georgia Institute of Technology
Fall 2021 — Fall 2023	<b>David Munechika</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i> Now: Machine Learning Engineer at Apple

Fall 2021 — Spr. 2023	<b>Kevin Li</b> <i>B.S. in Computer Science and Biomedical Engineering, Georgia Institute of Technology</i> Now: ML Ph.D. at Carnegie Mellon University
Fall 2021 — Spr. 2023	<b>Alex Yang</b> <i>M.S. in Computer Science, Georgia Institute of Technology</i> Now: CS Ph.D. at Georgia Institute of Technology
Fall 2021 — Spr. 2022	<b>Omar Shaikh</b> <i>B.S. in Computer Science, Georgia Institute of Technology</i> 🏆 Sigma Xi Best Undergraduate Research Award, Georgia Institute of Technology Now: CS Ph.D. at Stanford University

## Grants and Funding

2024	<b>Democratizing Visual AI: Enhancing Efficiency and Usability of Large Vision Models for Fostering Under-Resourced Access</b> NSF Medium Grant Co-PIs: Judy Hoffman, Celine Lin, Duen Horng (Polo) Chau Co-authored winning proposal. Contributed to experiment with on-device implementation of the CLIP model.
2023	<b>Scaling Up Educators' Capacities: Automating Visualization Assessment via Generative AI</b> Google Award for Inclusion Research Co-PIs: Duen Horng (Polo) Chau Co-authored a proposal resulting in \$60k resesarch funding from Google.
2022	<b>Cisco Research Funding</b> Co-PIs: Duen Horng (Polo) Chau Co-authored a proposal resulting in \$200k resesarch funding on responsible AI from Cisco.

## Service

### Reviewer

ACM CHI conference on Human Factors in Computing Systems (**CHI**), 2025  
 IEEE Pacific Visualization Conference (**PacificVis**), 2025  
 7th Workshop on Visualization for AI Explainability (**VISxAI**), 2024  
 ACM Conference On Computer-Supported Cooperative Work and Social Computing (**CSCW**), 2023

### Institutional

2021 – Present	<b>Georgia Tech Korean Student Association</b> Have served as treasury, web administrator, and recruitment officer. Organize events for Korean graduate students at Georgia Tech.
2022 – 2024	<b>Georgia Tech CSE Website Committee</b> Improve external and internal communication in collaboration with a communication officer and faculty members
2020	<b>SNU Buddy</b> Selected as the best buddy out of over 60 buddy students based on the votes from international exchange students.
2017 – 2018	<b>Seoul National University ECE Student Vice President</b> Elected from student vote.
2017 – 2021	<b>Seoul National University ECE Student Reporter</b> Published a magazine about research, people, and events of Department of ECE every semester.
2018, 2019	<b>Dream Camp Mentoring</b> Conducted mentoring program about "how to materialize one's dream" for high school students in countryside
2016, 2017	<b>KOSAF Talent Sharing Volunteer Camp</b> Conducted self-planned mentoring for elementary school students in underprivileged areas in Korea

## Member

2021 - Present	Association for Computing Machinery ( <b>ACM</b> )
2021 - Present	Institute of Electrical and Electronics Engineers ( <b>IEEE</b> )
2018 — 2019	SNU Engineering Honor Society ( <b>STEM</b> )

## References

**Dr. Polo Chau**, Associate Professor  
School of Computational Science and Engineering  
*Georgia Institute of Technology*  
[cc.gatech.edu/~dchau/](https://cc.gatech.edu/~dchau/)