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.

✉ seongmin@gatech.edu   🐦 @SeongminLeee
🏠 seongmin.xyz   ⍟ @ligi214
📄 CV PDF   🎓 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 2025 — Present	**Adobe Inc.**, San Jose, CA *AI/ML Intern - Machine Learning Engineer/Researcher* Mentor: Tianyuan Cao, Anelise Newman, Gahye Park, Eric Slyman
May 2024 — Aug. 2024	**JP Morgan Chase & Co.**, New York, NY *Summer Associate, Research Teechnologies 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

2025 Next-generation Science and Technology Leader NET
Research grant of $1,500 funded by KOFST. Conducted interdisciplinary research on 'Digital Twins for Managing AI Infrastructure in Extreme Environments' with 5 other students.

2025 NCWIT AiC Collegiate Award Finalist

2024 IEEE BigData Student Travel Award
Selected as a recipient of the Student Travel Award.

2024 NeurIPS SoLaR Workshop Travel Fund Award
Selected as a recipient of the travel fund award of $1,800 for the NeurIPS SoLaR Workshop.

2024 Best Poster Award
Transformer Explainer receives Best Poster Award at VIS 2024.

2023 Next-generation Science and Technology Leader NET
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 CS7001 Best Final Project Award Honorable Mention
Awarded for the project 'VisCUIT: 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 The Presidential Science Scholarship
Full tuition and stipend of $5,000 per year. Around 150 students are selected nationally.

2018 - 2019 SNU Engineering Honor Society (STEM)
Used to be vice president, currently honorary member of STEM.

2017, 2018 Seoul National University ECE Voluntary Service Award
Selected based on the evaluation of the students, staffs, and faculty members of department of ECE.

2014 - 2015 Hansung Sonjaehan Scholarship
Stipend of $5,000 per year. Around 150 high school students studying math and science are selected nationally.

Publications

Interpretation Meets Safety: A Survey on Interpretation Methods and Tools for Improving LLM Safety
Seongmin Lee, Aeree Cho, Grace C. Kim, ShengYun Peng, Mansi Phute, Duen Horng (Polo) Chau
ArXiv (ArXiv). 2025.
🔗 Project 📄 PDF 📋 BibTeX

Probing LLM Hallucination from Within: Perturbation-Driven Approach via Internal Knowledge
Seongmin Lee, Hsiang Hsu, Chun-Fu Chen, Duen Horng (Polo) Chau
ArXiv (ArXiv). 2025.
🔗 Project 📄 PDF 📋 BibTeX

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

Will AI Take Over the World? Understanding Risks in ChatGPT
Apr 2025   UGAxGT Graduate Research Seminar

Mar 2025 **LLM Attributor: Interactive Visual Attribution for LLM Generation**
Georgia Tech, School of CSE Recruiting Event

Mar 2025 **Will AI Take Over the World? Understanding AI's Realistic Risks**
Women in GTKSA Research & Career Seminar

Aug 2024 **Expanding Your Career Canvas: Pitching Strategies for Diverse Audiences**
Fostering Innovation in Rising Experts (FIRE) at United States-Korea Conference (UKC)

Nov 2023 **Diffusion Explainer: Diffusion Explainer: Visual Explanation for Text-to-image Stable Diffusion**
Georgia Tech, School of CSE Recruiting Event

Nov 2023 **Student Panel for Prospective Students**
Georgia Tech, School of CSE Recruiting Event

May 2023 **STEM Global Engineer Seminar**
Seoul National University, SNU Engineering Honor Society (STEM)

Nov. 2022 **MisVis: Explaining Website Reliability by Visualizing Hyperlink Connectivity**
Georgia Tech, School of CSE Recruiting Event
Mar. 2022 AVAST Software, Fake News Monthly Sync Up

Jun. 2020 **Multi-Source Domain Adaptation with Pseudo-labels**
Seoul National University, AIIS Retreat

Jul. 2019 **STEM Vision Mentoring**
Seoul National University, STEM Vision Mentoring
Organized and gave lectures on engineering for high school students. More than 700 students attended.

Teaching

Spring 2024 **Graduate Teaching Assistant**
Georgia Institute of Technology, Atlanta, GA
Data and Visual Analytics (CSE6242), Instructor: Duen Horng (Polo) Chau, Mahdi Roozbahani
Online course with 1201 graduate students enrolled.

Fall 2022 **Graduate Teaching Assistant**
Georgia Institute of Technology, Atlanta, GA
Data and Visual Analytics (CSE6242), Instructor: Duen Horng (Polo) Chau, Mahdi Roozbahani
Online course with 1146 graduate students enrolled.

Jan. 2021 **Lab Session Lecturer**
LG Chem, Seoul, South Korea
Deep Learning Course

Nov. 2020 **Lab Session Lecturer**
SK Hynix, Seoul, South Korea
Deep Learning Course

Fall 2020, Fall 2019 **Undergraduate Student Tutor**
Seoul National University, Seoul, South Korea
Introduction to Algorithm
Selected as tutor for two consecutive years based on interviews and academic performanace

Spring 2017 **Undergraduate Student Tutor**
Seoul National University, Seoul, South Korea
Introduction to Physics I
Selected as tutor based on academic performance

Mentoring

Fall 2023 — Present

Sri Ranganathan Palaniappan
B.S. in Computer Science, Georgia Institute of Technology

Fall 2024 — Present

Kunal Mohindra
B.S. in Computer Science, Georgia Institute of Technology

Fall 2023 — Fall 2024

Aishwarya Chakravarthy
B.S. in Computer Science, Georgia Institute of Technology

Fall 2023 — Fall 2024

Grace Kim
B.S. in Computer Science, Georgia Institute of Technology

Fall 2023 — Fall 2024

Alexander Karpekov
M.S. in Computer Science, Georgia Institute of Technology
Now: CS Ph.D. at Georgia Institute of Technology

Fall 2023 — Fall 2024

Aeree Cho
M.S. in Computer Science, Georgia Institute of Technology
Now: ML Ph.D. at Georgia Institute of Technology

Fall 2021 — Fall 2023

David Munechika
B.S. in Computer Science, Georgia Institute of Technology
Now: Machine Learning Engineer at Apple

Fall 2021 — Spr. 2023

Kevin Li
B.S. in Computer Science and Biomedical Engineering, Georgia Institute of Technology
Now: ML Ph.D. at Carnegie Mellon University

Fall 2021 — Spr. 2023

Alex Yang
M.S. in Computer Science, Georgia Institute of Technology
Now: CS Ph.D. at Georgia Institute of Technology

Fall 2021 — Spr. 2022

Omar Shaikh
B.S. in Computer Science, Georgia Institute of Technology
🎖 Sigma Xi Best Undergraduate Research Award, Georgia Institute of Technology
Now: CS Ph.D. at Stanford University

Grants and Funding

2024

Democratizing Visual AI: Enhancing Efficiency and Usability of Large Vision Models for Fostering Under-Resourced Access
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

Scaling Up Educators' Capacities: Automating Visualization Assessment via Generative AI
Google Award for Inclusion Research
Co-PIs: Duen Horng (Polo) Chau
Co-authored a proposal resulting in $60k resesarch funding from Google.

2022

Cisco Research Funding
Co-PIs: Duen Horng (Polo) Chau
Co-authored a proposal resulting in $200k resesarch funding on responsible AI from Cisco.

Service

Reviewer

Annual Meeting of the Association for Computational Linguistics (**ACL**), 2025

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 Georgia Tech Korean Student Association
Have served as treasury, web administrator, and recruitment officer. Organize events for Korean graduate students at Georgia Tech.

2022 – 2024 Georgia Tech CSE Website Committee
Improve external and internal communication in collaboration with a communication officer and faculty members

2017 – 2021 Seoul National University ECE Student Reporter
Published a magazine about research, people, and events of Department of ECE every semester.

2020 SNU Buddy
Selected as the best buddy out of over 60 buddy students based on the votes from international exchange students.

2018, 2019 Dream Camp Mentoring
Conducted mentoring program about "how to materialize one's dream" for high school students in countryside

2018 Young Generation Forum (YGF)
Hosted by KOFST to bring young Korean heritage students from all over the world. Attended as a Korean delegate.

2017 – 2018 Seoul National University ECE Student Vice President
Elected from student vote.

2016, 2017 KOSAF Talent Sharing Volunteer Camp
Conducted self-planned mentoring for elementary school students in underprivileged areas in Korea

Member

2021 - Present Association for Computing Machinery (**ACM**)

2021 - Present Institute of Electrical and Electronics Engineers (**IEEE**)

2018 — 2019 SNU Engineering Honor Society (**STEM**)

References

Dr. Polo Chau, Associate Professor
School of Computational Science and Engineering
Georgia Institute of Technology
cc.gatech.edu/~dchau/