

# Hyemi Song

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## Summary

Hyemi Song is a researcher and a designer interested in topics related to “data, communication, and humans’ in complex systems. Her academic research areas include information visualization, human-computer interaction, and visual analytics.

## Education

**University of Maryland**, College Park, USA, 2022-Present  
Ph.D. Computer Science

**University of Maryland**, College Park, USA, 2022-2024 (Expected)  
Master of Science, Computer Science

**Rhode Island School of Design**, Providence, USA  
Master of Fine Arts, Digital + Media

**University of the Arts London**, London, UK  
Foundation, Visual Communication

**The Catholic University of Korea**, Seoul, Korea  
Bachelor of Science, Molecular Biology

## Teaching Experience

**University of Maryland College Park**, 2022 Spring/Summer, 2023 Spring/Summer/Fall  
Position: Teaching Assistant  
Class: Introduction to Data Science, Web Application Development with JavaScript

**Rhode Island School of Design**, 2016 Winter  
Position: Instructor  
Class: Measuring the Universe (2016 RISD Winter Session)

## Research Experience

**Natural Language and Data Visualization Interplay in AR/VR**, 2023 - Present  
My research explores the complex interplay between natural language and data visualizations in AR/VR environments for users with diverse background and expertise levels. This work is situated within the broader context of Generative AI-powered immersive analytics with multimodal interaction.

**Sensemaking with Heterogeneous data**, 2023  
Role: First Author  
This study explores the potential influence of integrating text and visualization in a data analysis tool on users' data sensemaking process and outcomes. With the increasing accessibility of various datasets online, there is a challenge in extracting insights from multiple datasets due to their differing formats and types. To formulate a concise research question, we conducted self-experiments using toy datasets on gun violence to compare human and GPT-4 analyses and a formative study. (semi-structured interview)

**Towards understanding in-context learning with contrastive demonstrations and saliency maps**, 2023, [Link](#)  
Role: Co-Author

We investigate the role of various demonstration components in the in-context learning (ICL) performance of large language models (LLMs). Specifically, we explore the impacts of ground-truth labels, input distribution, and complementary explanations, particularly when these are altered or perturbed.

### **Beyond Replication: How Timing and Schematic Similarity Shape Example-Based Data Visualization Design, 2023**

Role: Co-Author

This research investigates the influence of examples on visualization design, identifying key factors in idea transfer and effectiveness and guiding future example-based design studies.

### **Intents, Techniques, and Components: a Unified Analysis of Interaction Authoring Tasks in Data Visualization, 2022 - Present**

Role: First Author

This theory paper introduces a framework to compose interactions for data visualization. There is growing interest in interaction authoring tools in data visualization; however, the literature focuses on communication and data analysis rather than how to compose interactions. We analyzed 45 real-world examples to consolidate existing models and create a new model. Currently, a new study is in progress.

## **Professional Experience**

**University of Maryland College Park**, USA, 2022 - Present

Position: Research Assistant (Working with Dr. Amitabh Varshney)

UMD Graphics and Visual Informatics Laboratory, Human-Computer Interaction Lab

**Microsoft**, Redmond, USA, 2019 - 2022

Position: Senior Designer

Specialized in Data Visualization, Designed for Machine Learning and AI products.

Designed Error Analysis Dashboard, Azure Machine Learning Studio, and more.

**Datadog Inc**, New York, USA, 2017 - 2019

Position: Product Designer

Specialized in Data Visualization. Designed/developed [Service Map](#), Host, and Infra map.

**Massachusetts Institute of Technology**, MIT Senseable City Lab, Cambridge, USA, 2016 - 2017

Position: Research Fellow, Data Visualization Specialist

Developed and designed an award-winning project, Cityways, Driving DNA,

Pisa Pool, Urban Exposure, and more.

**eyeballNYC**, New York, USA, 2015

Position: Design Intern

Designed a Logo for Sylvia Day who is a US best-selling author, as well as working on 5+ other projects.

**NAVER Corporation**, Seoul, Korea, 2011 - 2014

Position: UX/UI designer

Designed mobile/web UX/UI for a Social Network Service called 'me2day' (Korea's

equivalent of Twitter) and designed the Portal Service, 'NAVER' (the largest search engine in Korea).

**VINYL Interactive**, Seoul, Korea, 2010 - 2011

Position: UX/UI designer

Designed and developed the web/mobile Service Strategies & Proposals, interactive

installations, and digital media promotions for 10+ clients; SAMSUNG, Korea

Telecommunication, and more. KT Olleh Square won a prize from the iF design awards.

**2015 Brothers**, Seoul, Korea, 2009 - 2010

Position: Art Director

Designed and directed advertising projects for 20+ clients, including SKTelecom, SAMSUNG, and Korea Technology.

**PXD**, Seoul, Korea, 2008 - 2009

Position: Interaction Designer

Developed and designed mobile/web UI/UX services for clients including SKTelecom and SAMSUNG.

**Samsung Electronics**, Seoul, Korea

Position: Design intern

Researched web 2.0 and worked on a Flexible Display Project proposal.

**Cheil World Wide**, Seoul, Korea

Position: Design intern

Participated in a NY Time Square Outdoor Advertisement Proposal to make a creative movie.

**Kiz Entertainment**, Seoul, Korea

Position: Clay Animator

Participated in Clay animations for an advertisement, and TV Series with 5+ Clients, including Korean Broadcasting System and Dino land.

## Publication & Book Chapter

**Towards understanding in-context learning with contrastive demonstrations and saliency maps**

Zongxia Li, Paiheng Xu, Fuxiao Liu, Hyemi Song

arXiv preprint arXiv:2307.05052

**Intents, Techniques, and Components: a Unified Analysis of Interaction Authoring Tasks in Data Visualization**, 2023

Unpublished

**Walking in a place, Walkestra**, 2016

Hyemi Song

MFA Thesis book, Rhode Island School of Design

**RAW DATA**, USA, 2014

Book Chapter, (Project: The temperature of my mind / Visualizing works) / [Link1](#) [Link2](#)

+ Book Author: Steven Heller, Rick Landers

## Invited talk (Selected)

**Ohio State University** Ohio, USA, 2022

Lecture: Data and Human Communication

**GyeongGi Cultural Foundation**, Seoul, Korea, 2021

Lecture: Data as a communication medium: art, design, and human

**San Jose State University** San Jose, USA, 2021

Lecture: Data and Human Communication

Workshop: Measuring the temperature of my mind

## Jury, Peer Review, Advising service

**DIS**- Peer reviewer, Full papers, 2024 - Present

**IEEEVIS** - Peer reviewer, Full papers, 2023 - Present

**PacificVis** - Juror, 2022 - Present

**IEEEVIS Arts Program** - Program Committee / [Link](#), 2018 - Present

**A' Design Award & Competition**, Italy - Jury Member, 2018 - 2022

**Brown University, Computer Science Department**, USA - Portfolio Reviewer, 2019 - 2021

**Apexart**, USA - Jury Member, 2017

## Grant, Fellowship & Scholarship

**IEEEVIS 2023**, USA - Inclusive and Diversity Scholarship, 2023  
**University of Maryland College Park**, USA - Dean's Fellowship/Assistantship, 2022-Present  
**Massachusetts Institute of Technology**, USA - Fellowship, 2016 - 2017  
**Rhode Island School of Design**, USA - Assistantship/Fellowship, 2014 - 2016  
**Samsung Art & Design Institute**, Korea - Scholarship, 2007

## Award

**IEEE Arts Program, Melbourne**, Australia - Accepted for exhibition, 2023 (Project: Solar System)  
**A'Design Award and Competition**, Italy - Winner (Gold), 2018-2019  
**Information is Beautiful Awards**, USA - Long List, 2018  
**World Changing Ideas Awards (by Fast Company)**, USA - Finalist, 2018  
**IEEE Arts Program, Berlin**, Germany - Accepted for exhibition  
**A'Design Award and Competition**, Italy - Winner (Iron), 2016-2017  
**53rd American Graphic Design Awards, GDUSA**, USA -Winner (Student), 2016  
**Spark International Design Awards**, USA - Finalist, 2016  
**Adobe Design Achievement Awards**, USA - Semifinalist, 2008, 2015, 2016  
**Adobe Design Achievement Awards**, USA - Honorable Mention 2007  
**IF Design Award**, USA - Winner, 2010  
**Good Design Award**, Japan - Winner, 2010  
**Seoul Design Olympiad 2009**, Korea - Winner (Honorable Mention)  
**SADI Graduation Award**, Korea - Experimental Portfolio Winner  
**11th Environmental Management Corporation Award**, Korea - Winner

## Coursework (UMD)

Explainable Natural Language Processing [Link](#)  
Natural Language Processing [Link](#)  
User Experience Research Methods [Link](#)  
Information Visualization [Link](#)  
Advances in XR [Link](#)  
Info-Centric Design System [Link](#)  
Interactive Technologies in Human-Computer Interaction  
Visual Analytics  
Bioinformatics (AU)  
Embodied Media Design (AU)

## Press

**Monthly Design** (Oldest Korean Design Magazine), Seoul, Korea, 2018  
Feature Interview, Title - Data Visualization Designer, Hyemi Song / [Link](#)  
**Data Vis Today**, USA, 2018  
Feature Interview, Podcast (Episode 13) / [Link](#)  
**IdN**, Hong Kong, 2018  
Featured article (Project: CityWays), IdN is an international Design Magazine / [Link](#)  
**The Guardian**, USA, 2016  
News Article (Project: Urban Exposure), Data Visualization at MIT Senseable City Lab / [Link](#)  
**Visual Loop**, Brazil, 2012  
Featured article, Title - Finding stories of data visualization from twitter / [Link](#)  
**Information Aesthetics**, USA, 2011

Featured article, Title - Visualizing Works: Hyemi Song's Innovative Portfolio / [Link](#)

**Visualising Data**, USA, 2011

Featured article, Title - Visualizing Works: Hyemi Song's Innovative Portfolio

**Sadi Vision**, Korea, 2011

Featured article (Project: Visualizing Works)

**IF Online Gallery**, USA, 2010

IF Online Gallery (Project: KT Olleh Square)

**2009 Seoul Design Olympiad**, Korea, 2009

Annual publication for winners

**Adobe Design Achievement Award Online Gallery**, USA, 2008

ADAA Online Gallery (Project: The temperature of my mind)

## Exhibition

**IEEE Arts Program, Melbourne**, Australia, 2023 (Project: Solar System)

**Design Korea Festival 2020, Design Beyond Data**, @Coex, Seoul, Korea, (Declined) 2020

**IEEE Arts Program**, Berlin, Germany, 2018

**A'design Award Winner exhibition**, @Mood, Italy, 2017

**Shenzhen Design Week**, @Shenzhen Convention Center, China, 2017

**RISD Nature Lab anniversary exhibition**, @Waterman Gallery, USA, 2017

**Internet Festival**, @Waterman Gallery, Pisa , Italy, 2016

**RISD Graduate Exhibition**, @Providence Convention Center, USA

**Dark Matter**, @RISD Sol Koffler Gallery, USA

**Image Landscapes**, @RISD Gelman Gallery, USA

**Annual Student Artists' Book Exhibition**, @RISD Fleet Library, USA

**2009 Seoul Design Olympiad**, @Jamsil Main Stadium, Korea

**Sharing Experience 2009**, @Zero one center Gallery, Korea

**Onepiece Magazine Ceremony Party 500**, Korea

**Reviewing Hanul Exhibition**, @Space Hiut, Korea

**GUANGZHOU Design Korea Exhibition**, Guangzhou, China

**2nd D.I.P. Exhibition**, @SADI Space Gallery, Korea

**21st D.I.P. Exhibition**, @SADI Space Gallery, Korea

**SADI Graduation Exhibition**, @SADI Space Gallery, Korea

**Hanul Exhibition**, @Shinhan Gallery, Korea

**Chelsea College of Arts Graduation Exhibition**, @Hugon Road Gallery, UK

## Skillsets

Front, Backend, Data Visualization, Data Science, AR/VR

Javascript, React, Redux, Express.js, MongoDB, Python, HTML, CSS, C#

D3js, VegaLit, Matplotlib, Three.js, PyTorch, Unity

Design & Research

UX/UI design, Interaction Design, UX Research, Academic Research