

# 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

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

**Samsung Art & Design Institute**, Seoul, Korea  
Visual Communication Design (3yrs)

**University of the Arts London**, London, UK  
Foundation, Visual Communication (1yr)

**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 aims to study complex interactions between natural language (e.g., speech and text) and visualizations for various users. This study explores their interplay when utilized as multimodal inputs and outputs. An example of an input is a natural language interface combined with speech for Chart Question/Answer. For outputs, the study could examine how storytelling is authored, integrating explanatory texts with visualizations.

**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)

Varshney Lab, 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

**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

## 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)

## 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

**IEEE Infovis** - Peer reviewer, Full papers, 2023 - Present

**PacificVis** - Juror, 2022 - Present

**IEEE VIS 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)

## 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