

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, visual analytics, and XR. Currently, she studies Natural Language and Data Visualization Interplay in XR under the supervision of Dr. Amitabh Varshney at UMD Graphics and Visual Informatics Laboratory.

Educational Background

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

University of Maryland, College Park, USA, 2022-2024
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 Design

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

Research Experiences

University of Maryland College Park, USA, 2022 - Present
Position: Research Assistant (Advisor: Dr. Amitabh Varshney)
Labs: UMD Graphics and Visual Informatics Laboratory, Human-Computer Interaction Lab
Currently working on Natural Language and Data Visualization Interplay in XR (within Generative AI-powered immersive analytics).

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.

NAVER Corporation, Seoul, Korea, 2011 - 2014
Position: UX Researcher
Designed mobile/web UX/UI for a Social Network Service, 'me2day' (Korea's equivalent of Twitter), and designed the Portal Service, 'NAVER' (the largest search engine in Korea).

Teaching Experiences

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)

Industry Experiences

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.

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.

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.

Research Projects

Natural Language and Data Visualization Interplay in XR, 2023 - Present

Role: First Author

My research explores the complex interplay between natural language and data visualizations in XR 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, 2022-2023

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.

Publications

Zongxia Li, Paiheng Xu, Fuxiao Liu, **Hyemi Song**, Towards understanding in-context learning with contrastive demonstrations and saliency maps, arxiv.org/abs/2307.05052, 2023

Hyemi Song, Sai Gopinath, Zhicheng Liu, Intents, Techniques, and Components: a Unified Analysis of Interaction Authoring Tasks in Data Visualization, 2023

Hyemi Song, Walking in a place, Walkestra, MFA Thesis, Rhode Island School of Design, 2016

Books & Book Chapters

Hyemi Song, Solar System, Annual Student Artists' Book Juried Contest, Rhode Island School of Design, 2015

Steven Heller, Rick Landers, Raw Data, (Published Works: The temperature of my mind, Visualizing works), 2014

Invited talks (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- Reviewer, Full papers, 2024 - Present

IEEEVIS - Reviewer, Full papers (2023), Short papers (2024), 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

Grants, Fellowships & Scholarships

DIS, USA - Awarded a complimentary one-year ACM Professional Membership (for paper review contribution), 2024
IEEEVIS, 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

Awards

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
Annual Student Artists' Book Juried Contest, USA - Accepted for exhibition and publication at RISD Fleet Library, 2015
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

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)

Exhibitions

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

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)

Skillsets

Front, Backend, Data Visualization, Data Science, AR/VR
 Javascript, React, Redux, Express.js, MongoDB, Python, HTML, CSS, C#
 D3js, Vegalite, Matplotlib, Three.js, PyTorch, Unity

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