Hyemi Song

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Summary

Hyemi Song is a researcher and designer interested in topics related to "data, communication, and humans" in complex systems. Her academic research areas include infovis, HCI, and Immersive Analytics. Currently, she studies Natural Language and Data Visualization Interplay in XR under the supervision of Dr. Amitabh Varshney.

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 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 examines the impact of integrating text and visualization in data analysis tools on users'
sensemaking processes. We conducted self-experiments with toy datasets on gun violence, comparing
human and GPT-4 analyses, and carried out a formative study using semi-structured interviews.

**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, *(Under Review)*

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 paper introduces a new framework for composing interactions in data visualization, consolidating existing models based on the analysis of 45 real-world examples.

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, School Archive, University of Maryland, 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, Vegalit, Matplotlib, Three.js, PyTorch, Unity

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