

# Hyemi Song

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## Summary

Hyemi Song is a researcher and designer interested in Information Visualization, HCI, and Immersive Analytics. Currently, she studies the complex interplay between Natural Language and Data Visualization in XR within generative AI-powered immersive analytics under the supervision of Dr. Amitabh Varshney. **Immigrant Status:** US Permanent Resident (EB-1A Extraordinary Ability, self-petitioned, 2021)

## 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.

**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.

**Kiz Entertainment**, Seoul, Korea, 2004

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

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

**Samsung Electronics**, Seoul, Korea, 2007,

**Cheil World Wide**, Seoul, Korea, 2006

Position: Design Intern

## Research Projects

### 1. Natural Language and Data Visualization Interplay in Immersive Environments

#### 1) NL-Driven Interactions in Generative AI-Infused Immersive Analytics, 2023 - Present, (WIP)

Role: First Author

This project is a subset of my PhD research, which delves into the complex interplay between natural language and data visualizations in immersive environments for users with diverse backgrounds and expertise levels.

#### 2) Interaction Authoring for Data Visualization in Immersive Environments, 2022 - Present, (WIP)

Role: First Author

This project presents a comprehensive analysis by reviewing numerous pieces of literature regarding the authoring interaction in immersive environments.

### 2. General topics in data visualization

#### 1) Towards Understanding In-context Learning with Contrastive Demonstrations and Saliency Maps, 2023, [arxiv.org/abs/2307.05052](https://arxiv.org/abs/2307.05052), 2023

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 altered or perturbed.

#### 2) 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.

## 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](https://arxiv.org/abs/2307.05052), 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, 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