

# Hyeon Jeon

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## Education

- 2022 – Present    **Ph.D. Student in Computer Science and Engineering**, Seoul National University  
Thesis: Human-Centered Dimensionality Reduction  
Committee: Jinwook Seo (Advisor and Vice Chair), Jaesik Park (Chair),  
Ghulam Jilani Quadri, Michaël Aupetit, and Kwan-Liu Ma
- 2020 – 2022    **Master's Student in Computer Science and Engineering**, Seoul National University  
Advisor: Jinwook Seo  
Entered Ph.D. program in Feb. 2022
- 2016 – 2020    **Bachelor of Science in Computer Science and Engineering**, POSTECH  
Graduate with honors (Magna Cum Laude)  
Early graduation (Seven semesters)

## Research Interests

Hyeon's research lies at the intersection of data visualization, machine learning, and human-computer interaction. He aims to make machine learning more human-centered to improve the reliability and efficiency of visual analytics. To this end, he develops machine learning algorithms, quality metrics, and interaction techniques for visual analytics.

## Publications

### Peer-Reviewed Conference Full Papers & Journal Articles

Papers in the IEEE VIS proceedings are published as a special issue of TVCG.  
Papers published in TVCG are invited for presentation at related conferences like VIS.  
\* denotes equal contribution.

- 2025    P12    **A critical analysis of the usage of dimensionality reduction in four domains**  
Dylan Cashman, Mark Keller, **Hyeon Jeon**, Bum Chul Kwon, and Qianwen Wang  
IEEE Transactions on Visualization and Computer Graphics (TVCG)
- P11    **Measuring the validity of clustering validation datasets**  
**Hyeon Jeon**, Michaël Aupetit, DongHwa Shin, Aeri Cho, Seokhyeon Park, and Jinwook Seo  
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

P10	<b>Unveiling high-dimensional backstage: A survey for reliable visual analytics with dimensionality reduction</b> <b>Hyeon Jeon</b> , Hyunwook Lee, Yun-Hsin Kuo, Taehyun Yang, Daniel Archambault, Sungahn Ko, Takanori Fujiwara, Kwan-Liu Ma, and Jinwook Seo ACM Conference on Human Factors in Computing Systems (CHI 2025)
2024	P9 <b>Phenoflow: A human-llm driven visual analytics system for exploring large and complex stroke datasets</b> Jaeyoung Kim, Sihyeon Lee, <b>Hyeon Jeon</b> , Keon-Joo Lee, Hee-Joon Bae, Bohyoung Kim, and Jinwook Seo IEEE Transactions on Visualization and Computer Graphics (TVCG, Proc. VIS 2024)
P8	<b>Natural language dataset generation framework for visualizations powered by large language models</b> Hyung-Kwon Ko, <b>Hyeon Jeon</b> , Gwanmo Park, Dae Hyun Kim, Nam Wook Kim, Juho Kim, and Jinwook Seo ACM Conference on Human Factors in Computing Systems (CHI 2024)
P7	<b>CloChat: Understanding how people customize, interact, and experience personas in large language models</b> Juhye Ha, <b>Hyeon Jeon</b> , DaEun Han, Jinwook Seo, and Changhoon Oh ACM Conference on Human Factors in Computing Systems (CHI 2024)
2023	P6 <b>MoNetExplorer: A visual analytics system for analyzing dynamic networks with temporal network motifs</b> Seokweon Jung, DongHwa Shin, <b>Hyeon Jeon</b> , Kiroong Choe, and Jinwook Seo IEEE Transactions on Visualization and Computer Graphics (TVCG) Invited to IEEE VIS 2024 for presentation
P5	<b>Classes are not clusters: Improving label-based evaluation of dimensionality reduction</b> <b>Hyeon Jeon</b> , Yun-Hsin Kuo, Michael Aupetit, Kwan-Liu Ma, and Jinwook Seo IEEE Transactions on Visualization and Computer Graphics (TVCG, Proc. VIS 2023)
P4	<b>CLAMS: A cluster ambiguity measure for estimating perceptual variability in visual clustering</b> <b>Hyeon Jeon*</b> , Ghulam Jilani Quadri*, Hyunwook Lee, Paul Rosen, Danielle Albers Szafir, and Jinwook Seo IEEE Transactions on Visualization and Computer Graphics (TVCG, Proc. VIS 2023) <i>Best Papers Honorable Mention Awards (top 5% submissions)</i>
P3	<b>Large-scale text-to-image generation models for visual artists' creative works</b> ACM International Conference on Intelligent User Interfaces (IUI 2023) Hyung-Kwon Ko, Gwanmo Park, <b>Hyeon Jeon</b> , Jaemin Jo, Juho Kim, and Jinwook Seo
2021	P2 <b>Measuring and explaining the inter-cluster reliability of multidimensional projections</b> IEEE Transactions on Visualization and Computer Graphics (TVCG, Proc. VIS 2021) <b>Hyeon Jeon</b> , Hyung-Kwon Ko, Jaemin Jo, Youngtaek Kim, and Jinwook Seo
2020	P1 <b>Githru: Visual analytics for understanding software development history through git metadata analysis</b> IEEE Transactions on Visualization and Computer Graphics (TVCG, Proc. VAST 2020) Youngtaek Kim, Jaeyoung Kim, <b>Hyeon Jeon</b> , Young-Ho Kim, Hyunjo Song, Bohyoung Kim, and Jinwook Seo

## Peer-Reviewed Conference Short Papers

- 2025 S8 **Navigating High-Dimensional Backstage: A Guide for Exploring Literature for the Reliable Use of Dimensionality Reduction**  
**Hyeon Jeon**, Hyunwook Lee, Yun-Hsin Kuo, Taehyun Yang, Daniel Archambault, Sungahn Ko, Takanori Fujiwara, Kwan-Liu Ma, and Jinwook Seo  
Eurographics/VGTC Conference on Visualization (EuroVis 2025)
- S7 **Automated Pipeline for Detecting and Analyzing Misleading Visual Elements**  
Min Hyeong Kim, Yumin Song, Yungun Kim, Aeri Cho, Soohyun Lee, **Hyeon Jeon**, and Jinwook Seo  
IEEE Pacific Visualization Conference (PacificVis 2025)
- 2024 S6 **CLeVer: Continual learning visualizer for detecting task transition failure**  
Minsuk Chang, Donghun Kim, **Hyeon Jeon**, Seokweon Jung, and Jinwook Seo  
IEEE Pacific Visualization Conference (PacificVis 2024)
- S5 **IoLens: Visual analytics system for exploring storage i/o tracking process**  
Changmin Jeon, Jiwon Ha, Hyolim Hong, **Hyeon Jeon**, Hyeonsang Eom, Heonyoung Yeom, and Jinwook Seo  
IEEE Pacific Visualization Conference (PacificVis 2024)
- 2023 S4 **ZADU: A python library for evaluating the reliability of dimensionality reduction embeddings**  
**Hyeon Jeon**, Aeri Cho, Jinhwa Jang, Soohyun Lee, Jake Hyun, Hyung-Kwon Ko, Jaemin Jo, and Jinwook Seo  
IEEE Visualization and Visual Analytics (VIS 2023)
- 2022 S3 **Uniform manifold approximation with two-phase optimization**  
**Hyeon Jeon**<sup>\*</sup>, Hyung-Kwon Ko<sup>\*</sup>, Soohyun Lee, Jaemin Jo, and Jinwook Seo  
IEEE Visualization and Visual Analytics (VIS 2022)
- S2 **VANT: A visual analytics system for refining parallel corpora in neural machine translation**  
Sebeom Park, Soohyun Lee, Youngtaek Kim, **Hyeon Jeon**, Seokweon Jung, Jinwook Bok, and Jinwook Seo  
IEEE Pacific Visualization Symposium (PacificVis 2022)  
*Best Visualization Notes (top 1st submission)*
- 2021 S1 **Visualization support for multi-criteria decision making in software issue propagation**  
Youngtaek Kim, **Hyeon Jeon**, Young-Ho Kim, Yuhoon Ki, Hyunjo Song, and Jinwook Seo  
IEEE Pacific Visualization Symposium (PacificVis 2021)

## Panel & Tutorial Organizations

- 2025 A2 **Reliable visual analytics with dimensionality reduction: Quality evaluation and interpretation of projections**  
**Hyeon Jeon**, Takanori Fujiwara, and Rafael M. Martins  
Tutorial at EuroVis 2025

- 2024 A1 **How many evaluations are enough? A panel discussion on evaluation trends in information visualization**  
 Ghulam Jilani Quadri, Danielle Albers Szafir, Arran Zeyu Wang, and **Hyeon Jeon**  
 Panel at IEEE VIS 2024  
 Panelists: Niklas Elmqvist, Tobias Isenberg, Rita Borgo, Michael Sedlmair, Cindy Xiong Bearfield

## Workshop Papers, Posters, and Domestics

- 2025 O8 **Can VLMs Assess Similarity Between Graph Visualizations?**  
 Seokweon Jung, **Hyeon Jeon**, Jeongmin Rhee, and Jinwook Seo  
 IEEE Pacific Visualization Conference (PacificVis 2025), Poster  
*Best Poster Awards (top 1st submission)*
- O7 **Understanding How Visualization Researchers Create Visualizations**  
 Yumin Song, **Hyeon Jeon**, John Joon Young Chung, and Jinwook Seo  
 IEEE Pacific Visualization Conference (PacificVis 2025), Poster
- O6 **HookLens: Visual Analytics for Understanding React Hook Structures**  
 Suyeon Hwang, Minkyu Kweon, Jeongmin Rhee, Soohyun Lee, Seokhyeon Park, Seokweon Jung, **Hyeon Jeon**, and Jinwook Seo  
 IEEE Pacific Visualization Conference (PacificVis 2025), Poster
- 2024 O5 **Efficiently crowdsourcing visual importance with punch-hole annotation**  
 Minsuk Chang, Soohyun Lee, Aeri Cho, **Hyeon Jeon**, Seokhyeon Park, Cindy Xiong Bearfield, and Jinwook Seo  
 IEEE Visualization and Visual Analytics (VIS 2024), Poster
- O4 **Combinational nonuniform timeslicing of dynamic networks**  
 Seokweon Jung, DongHwa Shin, **Hyeon Jeon**, and Jinwook Seo  
 IEEE Pacific Visualization Conference (PacificVis 2024), Poster
- 2023 O3 **A vega-lite dataset and natural language generation pipeline with large language models**  
 Hyung-Kwon Ko, **Hyeon Jeon**, Gwanmo Park, Dae Hyun Kim, Nam Wook Kim, Juho Kim, and Jinwook Seo  
 NLVIZ 2023 Workshop: Exploring Research Opportunities for NL, Text, and Data Visualization
- O2 **Interactive visual analytics system for criminal intelligence analysts with multiple coordinated views**  
 Seokweon Jung, DongHwa Shin, Jinwook Bok, Seokhyeon Park, **Hyeon Jeon**, Jinwook Seo, Insoo Lee, and Sooyoung Park  
 Journal of KIISE
- 2021 O1 **Interactive visualization for exploring information fragments in software repositories**  
 Youngtaek Kim, **Hyeon Jeon**, Kiroong Choe, Hyunjoo Song, Bohyoung Kim, Jinwook Seo  
 IEEE Pacific Visualization Symposium (PacificVis 2021), Poster

## Awards and Honors

### Paper Awards

- 2025 **Best Poster Awards**, IEEE PacificVis 2025  
 Top 1st submission among all poster submissions

- 2023      **Best Papers Honorable Mentions**, IEEE VIS 2023  
Top 5% submissions among all full paper submissions
- 2022      **Best Visualization Notes**, IEEE PacificVis 2022  
Top 1st submission among all short paper submissions

## Fellowships and Scholarships

- 2025      **International Collaborative Research Scholarship**, SNU BK21 Four  
Granted 5,500,000 KRW ( $\simeq$  4,000 USD)
- 2024      **Google PhD Fellowship**, Google  
Granted 10,000 USD
- 2024      **Future Innovation Individual (Gold Award)**, SNU BK21 Four  
1st place among student researchers participating in SNU BK21 Four  
Granted 3,000,000 KRW ( $\simeq$  2,700 USD)
- 2023      **Outstanding Research Individual Fellowship**, SNU BK21 Four, Dept. of CSE  
Granted 10,000,000 KRW ( $\simeq$  9,000 USD)
- 2023      **Star Student Researcher Award**, SNU BK21 Four, Dept. of CSE  
Granted 700,000 KRW ( $\simeq$  600 USD)
- 2016 – 2019      **Jigok Scholarship**, POSTECH  
Full scholarship for undergraduates (Seven semesters)

## Travel Grants

- 2024      **Conference Travel Award**, Korea Computer Congress  
Support for conference registration and travel expenses

## Acknowledgements for Community Services

- 2024 – 2025      **Special Recognitions for Outstanding Reviews**  
PacificVis 2024, PacificVis 2025, C&C 2025, CHI 2025 ( $\times 2$ )
- 2025      **Outstanding Reviewer**  
KDD 2025

## Academic Services

### Program Committee

- 2025      Short Papers, IEEE Visualization and Visual Analytics (VIS)
- 2025      Late-Breaking Work, ACM CHI Conference on Human Factors in Computing Systems (CHI)
- 2024      Video Showcase, ACM CHI Conference on Human Factors in Computing Systems (CHI)

## Organizing Committee

2024 – 2025     **Student Volunteer Chair**, IEEE Visualization and Visual Analytics (VIS)  
2024             **Organizer**, Korea Visualization Workshop (K-VIS)

## Student Volunteers

2022 – 2024     IEEE Visualization and Visual Analytics (VIS)  
2023             IEEE Pacific Visualization Symposium (PacificVis)  
2022             ACM CHI Conference on Human Factors in Computing Systems (CHI)

## Conference Session Chair

2025             ACM CHI Conference on Human Factors in Computing Systems (CHI)

## Conference Reviewer (External)

2022 – 2025     IEEE Visualization and Visual Analytics (VIS)  
2022 – 2025     IEEE Pacific Visualization Symposium (PacificVis)  
2022 – 2025     Eurographics/VGTC Conference on Visualization (EuroVis)  
2022 – 2025     ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)  
2024 – 2025     ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)  
2025             ACM Symposium on User Interface Software and Technology (UIST)  
2025             ACM Creativity and Cognition Conference (C&C)  
2025             ACM Conference on Designing Interactive Systems (DIS)  
2024             ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)  
2023             ACM Conference on Intelligent User Interfaces (IUI)  
2022             Conference on Neural Information Processing System (NeurIPS)

## Invited Journal Reviewer

2024             IEEE Transactions on Visualizations and Computer Graphics (TVCG)  
2025             Computer Graphics Forum  
2023 – 2024     Journal of Visualization and Interaction (JoVI)  
2025             Scientific Reports  
2024             IEEE Transactions on Geoscience and Remote Sensing (TGRS)  
2024             International Journal of Human-Computer Interaction (IJHCI)  
2023             ACM Transactions on Knowledge Discovery from Data (TKDD)  
2021 – 2022     Visual Informatics

## Funded Grants

2024 – 2026     **GuardVis: AI-Powered Validation for Secure and Reliable Data Analysis and Visualization**  
National Research Foundation of Korea, Ph.D. Research Fellowship, No. RS-2024-00409716  
Investigator: **Hyeon Jeon**  
Amount: 40,000,000 KRW ( $\simeq$  30,000 USD)  
Accepted, but withdrawn due to my alternative military service as a technical research personnel

# Experiences

## Research Experiences

2025	<b>Visiting Ph.D. Student</b> , Aviz, INRIA (advised by Dr. Jean-Daniel Fekete and Dr. Petra Isenberg)
2022	<b>Visiting Ph.D. Student</b> , VIDI, University of California, Davis (advised by Dr. Kwan-Liu Ma)
2020	<b>Undergraduate Intern</b> , Human-Computer Interaction Lab., Seoul National University
2019	<b>Undergraduate Intern</b> , Algorithms Lab, POSTECH
2018	<b>Undergraduate Intern</b> , Computer Vision Lab, POSTECH

## Teaching Experiences

### Instructor

2025	<b>Reliable Visual Analytics with Dimensionality Reduction</b> , Tutorial at EuroVis 2025 [A2] Designed the first half of the lecture and programming practice (DR evaluation) ZADU [S4] was used for the programming practice Co-instructed with Taknori Fujiwara and Rafael M. Martins
2025	<b>Introduction to HCI Research</b> , Seoul National University Designed the course materials and assignments for a six-week intensive course Instructed for both the HCI Lab (CSE department) and the ViBA Lab (DS department)

### Teaching Assistants

2021 – 2024	<b>[M1522.000500] Information Visualization and Visual Analytics</b> , Seoul National University Contributed to course materials and programming assignments (D3.js) Advised four team projects to be conference papers [S2, S5, S6, S7]
2021	<b>[035.001] Digital Computer Concept and Practice</b> , Seoul National University Contributed to course materials and programming assignments (Python)
2025	<b>[E31.103] Undergraduate Independent Research: Inquiry</b> , Seoul National University Advised an undergraduate research project on HCI
2025	<b>AI &amp; Data Science Special Lecture for DS Division</b> , Samsung Electronics Course title: Trustworthy multidimensional visualizations Designed the course syllabus and programming practice session (Python) ZADU [S4] was used for the programming practice
2023	<b>Samsung AI Expert Program</b> , Seoul National University Course title: Visual analytics for high-dimensional data Designed the course syllabus and programming practice session (Python) ZADU [S4] was used for the programming practice
2020 – 2021	<b>Samsung DS<sup>2</sup> Program</b> , Seoul National University Course title: Data Visualization Contributed to course materials and programming assignments (Vega-Altair)

## Tutoring and Mentoring

- 2021 – 2025     **Undergraduate Research Opportunities Program (UROP)**, Seoul National University  
Mentored three undergraduate research projects (2021, 2023, and 2025)
- 2019 – 2020     **CSE Student Mentoring Program (SMP)**, POSTECH  
Algorithms (CSED331), Automata & Formal Languages (CSED341)

## Research Mentoring with Artifacts

All individuals listed have consented to be named in my CV.

- 2023 – 2025     **Min Hyeong Kim**, CSE Undergraduate/MS Student, Seoul National University  
Co-authored [S7]. Currently an MS student at Seoul National University
- 2023 – 2025     **Taehyun Yang**, CSE Undergraduate Student, Seoul National University  
Co-authored [P10]. Currently an undergraduate student at Seoul National University
- 2023 – 2024     **Jinhwa Jang**, CSE Master's Student, Seoul National University  
Co-authored [S4]. Currently a master's student at Seoul National University
- 2023             **Minsuk Chang**, CSE Undergraduate Student, Seoul National University  
Co-authored [S6], [05]. Currently a Ph.D. student at Georgia Institute of Technology
- 2021 – 2023     **Soohyun Lee**, CSE Master's Student, Seoul National University  
Co-authored [S4], [S3], [S2]. Currently a Ph.D. student at Seoul National University
- 2022             **Sebeom Park**, CSE Master's Student, Seoul National University  
Co-authored [S2]. Currently a staff engineer at Samsung Electronics

## Invited Talks

- 2025             **Human-centered dimensionality reduction**  
University of Stuttgart (VISUS), June 2025  
Yonsei University (axlab), March 2025  
University of Oklahoma (Guest Lecture, Information Visualization [CS5970]), February 2025  
Seoul National University, AI / Computing Frontier Winter School, January 2025
- 2024 – 2025     **Towards more reliable visual analytics for high-dimensional data**  
Samsung AI & Data Science Special Lecture, January 2025  
KAIST (Interactive Computing Lab), September 2024  
POSTECH (HIS Lab), July 2024  
University of California, Davis (Visualization Research Group), May 2024  
Georgia Institute of Technology (Visualization Group), April 2024  
KAIST (Kixlab), February 2024  
Google, February 2024  
Carnegie Mellon University (Data Interaction Group), February 2024
- 2022 – 2023     **Making clusters more reliable**  
Sungkyunkwan University (Interactive Data Computing Lab), August 2023  
UNIST (HAI-V Lab Visualization Seminar 2023), August 2023



Sejong University (Data Visualization Lab), May 2023  
University of North Carolina, Chapel Hill (Dept. of Computer Science), November 2022

- 2024      **Ambiguity in data visualizations**  
UNIST (HAI-V Lab Visualization Seminar 2024) July 2024  
UNIST (Guest Lecture, Introduction to Human-Computer Interaction [CSE333]), May 2024
- 2024      **Being an HCI Researcher**  
Seoul National University, HCI & AI Symposium (College of Liberal Studies), October 2024
- 2024      **Classes are not clusters: Improving label-based evaluation of dimensionality reduction**  
Korea Computer Congress, June 2024
- 2023      **CLAMS: A cluster ambiguity measure for estimating perceptual variability in visual clustering**  
Korea Software Congress, December 2023  
Seoul National University, Computing Frontier Summer School, August 2023
- 2022      **Measuring and explaining the inter-cluster reliability of multidimensional projections**  
Korea Software Congress, December 2022

## Press Coverage

- 2024      **Announcing the 2024 Google PhD Fellows**  
Google Korea Blog (Korean)
- 2023      **NAVER-SNU joint research, honored as ‘Top 5%’ at the prestigious data analysis conference**  
The Electronic Times (Korean)
- 2022      **Measuring and explaining the inter-cluster reliability of multidimensional projections**  
Seoul National University Artificial Intelligence Institute (SNU AIIS) Tech Blog

## References

**Dr. Jinwook Seo**, Professor, Seoul National University  
jseo@snu.ac.kr

**Dr. Kwan-Liu Ma**, Distinguished Professor, University of California, Davis  
klma@ucdavis.edu

**Dr. Michaël Aupetit**, Senior Scientist, QCRI, Hamad Bin Khalifa University  
maupetit@hbku.edu.qa

**Dr. Ghulam Jilani Quadri**, Assistant Professor, University of Oklahoma  
quadri@ou.edu

**Dr. Jaemin Jo**, Associate Professor, Syunkyunkwan University  
jmjo@g.skku.edu