Chunggi **Lee**

PhD Student @ Harvard University

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Education

Harvard University — *Boston, MA*

PH.D IN COMPUTER SCIENCE — *Sep. 2023 - Now*

- Advisor : Prof. Hanspeter Pfister

Ulsan National Institute of Science and Technology — *Ulsan, South Korea*

M.S IN ELECTRICAL AND COMPUTER ENGINEERING — *Mar. 2018 - Feb. 2020*

- GPA : 4.17/4.3, Advisor : Prof. Sungahn Ko
- Thesis Title: GUIComp: A GUI Design Assistantwith RealTime, MultiFaceted Feedback

Ulsan National Institute of Science and Technology — *Ulsan, South Korea*

B.S IN ELECTRICAL AND COMPUTER ENGINEERING — *Mar. 2014 - Feb. 2018*

- Magna Cum Laude
- Thesis Title: A Visual Analytics System for Exploring, Monitoring, and Forecasting Road Traffic Congestion.

Publications

International

P1. **Chunggi Lee**, Tica Lin, Hanspeter Pfister, Zhu-Tian Chen, **"Sportify: Question Answering with Embedded Visualizations and Personified Narratives for Sports Video."**, IEEE Transactions on Visualization and Computer Graphics (IEEE VIS) (**TBA**), 2024.

P2. Namhyuk Ahn, Junsoo Lee, **Chunggi Lee**, Kunhee Kim, Daesik Kim, Seung-Hun Nam, Kibeom Hong, **"DreamStyler: Paint by Style Inversion with Text-to-Image Diffusion Models."**, The Association for the Advancement of Artificial Intelligence (**AAAI**), 2024.

P3. Han Kim*, **Chunggi Lee***, Junsoo Lee*, Dohyun Kim, Kwangjin Lee, Moohyun Oh, Daesik Kim, **"FlatGAN: A Holistic Approach for Robust Flat-Coloring in High-Definition with Understanding Line Discontinuity."**, ACM Multimedia (**MM**), 2023.

P4. Cholmin Kang, **Chunggi Lee**, Heon Song, Minuk Ma, Sergio Pereira, **"Variability Matters : Evaluating inter-rater variability in histopathology for robust cell detection."**, European Conference on Computer Vision Workshop On AI-Enabled Medical Image Analysis (**ECCVW**), 2022. [PDF]

P5. **Chunggi Lee**, Seonwook Park, Heon Song, Jeongun Ryu, Sanghoon Kim, Haejoon Kim, Sergio Pereira, Donggeun Yoo, **"Interactive Multi-Class Tiny-Object Detection."**, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022. [PDF] [VIDEO]

P6. Cheonbok Park, **Chunggi Lee**, Hyojin Bahng, Yunwon Tae, Kihwan Kim, Seungmin Jin, Sungahn Ko, Jaegul Choo, **"ST-GRAT: A novel spatio-temporal graph attention networks for accurately forecasting dynamically changing road speed."**, ACM International Conference on Information and Knowledge Management (**CIKM**), 2020 (20.9% acceptance rate). [PDF]

P7. **Chunggi Lee**, Sanghoon Kim, Dongyun Han, Hongjun Yang, Young-Woo Park, Bum Chul Kwon, Sungahn Ko, **"GUIComp: A GUI Design Assistantwith RealTime, MultiFaceted Feedback"**, ACM CHI Conference on Human Factors in Computing Systems (**CHI**), 2020, Accepted. [PDF] [Preview Video] [VIDEO]

P8. **Chunggi Lee**, Yeonjun Kim, Seungmin Jin, Dongmin Kim, Ross Maciejewski, David Ebert, and Sungahn Ko, **"A Visual Analytics System for Exploring, Monitoring, and Forecasting Road Traffic Congestion."** IEEE transactions on visualization and computer graphics (**TVCG** IF=4.579), 2019 (Proc. **IEEE VIS'19**), Accepted. [LINK] [PDF] [VIDEO][NEWS1] [NEWS2] [NEWS3]

Preprint, Poster, Domestic

D1. Hyunwook Lee, **Chunggi Lee**, Hongkyu Lim, Sungahn Ko, **"TILDE-Q: A Transformation Invariant Loss Function for Time-Series Forecasting."**, (Under Review), 2022.

D2. Juyoung Oh, **Chunggi Lee**, Hwiyeon Kim, Kihwan Kim, Osang Kwon, Eric D. Ragan, Bum Chul Kwon, Sungahn Ko, **"An Empirical Study on the Relationship Between the Number of Coordinated Views and Visual Analysis."**, Arxiv. [PDF]

D3. **Chunggi Lee**, Juyoung Oh, Seungmin Jin, Isaac Cho, and Sungahn Ko, **"A Graphical Workflow Exploration Environment For Visual Analytics."**, Arxiv. [PDF]

D4. Kihwan Kim, Sanghoon Kim, **Chunggi Lee**, Sungahn Ko, **"Modeling Exploration/Exploitation Decisions through Mobile Sensing for Understanding Mechanisms of Addiction."**, **(MobiSys)**, 2019 (Poster)

D5. J. Lee, K. Kim, **C. Lee**, and S. Ko, "Visualization based Deep Learning Analysis Technology." The Korean Society for Noise and Vibration Engineering **(KSNVE)**, 2017, Accepted. [LINK] [PDF]

D6. Y. Oh, **C. Lee**, J. Oh, J. Yang, H. Gwag, S. Moon, S. Park, and S. Ko, "Introdcution of Visual Analytics." **Korea Computer Graphics Society**, 2016, Accepted. [LINK] [PDF]

Professional Experience

Naver Webtoon AI. *Gyeonggi-do, South Korea*

Researcher Scientist (Alternative Military Service) [LINK] *Aug 2022 - Aug 2023*

- Conducted research on **stable diffusion models** to support the process of webtoon (comics) creation
- Designed and built an **AI platform** frontend and backend to distribute deep learning models for users.

Lunit Inc. *Seoul, South Korea*

Researcher Engineer (Alternative Military Service) [LINK] *Mar 2020 - Aug-2022*

- Designed and built interactive deep learning models for reducing cost of annotations **(e.g., object detection and segmentation)**. (P2)
- Implemented an annotation tool and an internal operation tool with **Django, DRF, React, and mui.**
- Deployed and served deep learning models by using **TorchServe and Fast API.**
- Analyzed quality of pathology data which have significant different among experts and proposed a new method for evaluating pathology large-scale dataset (P1)

Interactive Visual Analysis & Data Exploration Research Lab *Ulsan, South Korea*

Researcher & Developer [LINK] *Jun 2016 - Mar 2020*

- Built interactive tools and visual analytic systems for **mobile GUI design authoring for novice** (P4), **traffic congestion forecasting and propagation** (P5), **multiple coordinate visualization** (D3), and **gene expression** (D4).
- Implemented **spatio-temporal deep learning models** (P3), mobile GUI recommendation deep learning, biomedical data clustering

Presentation

Naver TechTalk *Seoul, South Korea*

Presenter for <Deep Learning Model for Traffic Forecasting> *Aug. 2019*

- Introduced Deep Learning Model for Traffic Forecasting - DCRNN, LCRNN, STGCN, and GAAN [PDF]

Honors & Awards

2017	**4th Place & Bronze Prize**, National Super Computing Competition	*Ulsan, South Korea & KISTI & UNIST*
2017	**3rd Place & Bronze Prize**, Naver UNIST Undergraduate Poster Award '17 UNIST $1,500 [POSTER]	*Naver & UNIST*
2016 & 2017	**Semester GPA 3.94/4.3, GPA 3.93/4.3**, Semester Academic Excellence Award for 2016 Fall Semester, 2017 Fall Semester	*UNIST*
2016	**3rd Place**, HeXAThon, Develop Customization Interior Design VR Application, Received an award of $500	*Ulsan, South Korea & NAVER*
2016	**3rd Place**, Competition of Using Public Data of Ministry of Trade, Industry and Energy, Develop Emotional Color Combination VR Application, Received an award of $1,000	*Seoul, South Korea & Ministry of Trade, Industry and Energy*

Patent

- **Graphic User Interface Assistant Device and Method in Mobile Environment** – Application Number : 10-2019-0001190
- **Traffic Information Visualization Analysis Device and Method** – Application Number : 10-2018-0079727 (Acquired - $0.1M)

Services

2023-24	**Reviewer**, ACM CHI LBW, IEEE VIS	
2019	**Student Volunteer**, IEEE VIS	*Vancouver, Canada*
2019	**Teaching Assistant**, Object Oriented Programming	*Ulsan, South Korea*
2015	**Teaching Assistant**, Engineering Programming II	*Ulsan, South Korea*
2015	**Lecturer**, World Friends IT Volunteer	*Ulaanbaatar, Mongolia*