Chunggi **Lee**

Research Scientist @ Naver Webtoon AI

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Education

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

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

- GPA : 4.2/4.3, 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. 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]

P2. **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]

P3. Cheonbok Park, **Chunggi Lee**, Hyojin Bahng, Taeyun Won, 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]

P4. **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]

P5. **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. Hongkyu Lim, Jungeun Lee, Hyunwook Lee, **Chunggi Lee**, Seungmin Jin, Jeong Hwan Jeon and Sungahn Ko, **"DOTG:Demand-Oriented Trajectory Generator for High Ridership in Demand-Responsive Transport."**, (Under Review), 2022.

D3. 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]

D4. **Chunggi Lee**, Juyoung Oh, Seungmin Jin, Isaac Cho, and Sungahn Ko, **"A Graphical Workflow Exploration Environment For Visual Analytics."**, Arxiv. [PDF]

D5. Yunha Han, **Chunggi Lee**, Sanghoon Kim, Sungahn Ko, **"System Architecture for Progressive Augmented Reality."**, **(MobiSys)**, 2019 (Poster)

D6. Kihwan Kim, Sanghoon Kim, **Chunggi Lee**, Sungahn Ko, **"Modeling Exploration/Exploitation Decisions through Mobile Sensing for Understanding Mechanisms of Addiction."**, **(MobiSys)**, 2019 (Poster)

D7. 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]

D8. 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 - Present*

- 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*

Skills

- **Programming Language** : Python · JavaScript · HTML/CSS
- **DeepLearning** : Pytorch · TorchServe
- **Back-end** : Django · DRF · Fast API · MySQL
- **Front-end** : React · Material-UI
- **Language** : Korean · English - TOEFL: 98 (best score: 101)

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

- Student Volunteer - IEEE VIS'19