Sangyoon Lee

CONTACT	Ph.D. student	
	School of Computing, KAIST	Kim Byung Ho IT Building (N1) #722
	Email: pinetree408@gmail.com	KAIST, 291 Daehak-ro, Yuseong-gu
	URL: http://github.com/pinetree408	Daejeon 34141, Republic of Korea

RESEARCH INTERESTS

2D & 3D Generative Model, Language Model, Dual-language based Interface, Voice User Interface, Pen based Interface, Laptop based Interaction, Touch Interface, HCI X AI

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, Korea
Ph.D. student in Computer Science — MAR. 2018 – Present
Advisor: Geehyuk Lee, Ph.D.

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, Korea
M.S. in Computer Science — 2018
Thesis: "Diagnosing and Coping with Mode Errors in using a Dual-language Keyboard"
Advisor: Geehyuk Lee, Ph.D.

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, Korea
B.S. in Computer Science — 2016

PUBLICATIONS

International Conference and Journal Papers

1. **WristDial: An Eyes-Free Integer-Value Input Method by Quantizing the Wrist Rotation**
   Eunhye Youn, **Sangyoon Lee** Sunbum Kim, Youngbo Aram Shim, Liwei Chan, Geehyuk Lee
   IJHCI 2021

2. **ThroughHand: 2D Tactile Interaction to Simultaneously Recognize and Touch Multiple Objects**
   Jingun Jung, Sunmin Son, **Sangyoon Lee**, Yeonsu Kim, and Geehyuk Lee
   CHI 2021

3. **FS-Pad: Video Game Interactions with a Force Feedback Gamepad**
   Youngbo Aram Shim, Keunwoo Park, **Sangyoon Lee**, Jeongmin Son, Taeyun Woo, and Geehyuk Lee
   UIST 2020

4. **MirrorPad: Mirror on Touchpad for Direct Pen Interaction in the Laptop Environment**
   Sangyoon Lee, Youn-kyung Lim, Geehyuk Lee
   CHI 2020

5. **Voice+Tactile: Augmenting In-vehicle Voice User Interface with Tactile Touchpad Interaction**
   Jingun Jung, **Sangyoon Lee**, Jiwoo Hong, Eunhye Youn, and Geehyuk Lee
   CHI 2020

6. **Diagnosing and Coping with Mode Errors in Korean-English Dual-language Keyboard**
   Sangyoon Lee, Jaeyeon Lee, Geehyuk Lee
   CHI 2019

7. **Auto-switching List Search Interface for Touchscreen Smartwatches**
   Jingun Jung, **Sangyoon Lee**, Sunggeun Ahn, and Geehyuk Lee
   MobileHCI 2018

Domestic Conference Papers

1. **Diagnosing and Coping with Annotation Distribution Problem in PDF**
   Sangyoon Lee and Geehyuk Lee
   HCI Korea 2020

2. **First Principles Study of spin polarization in Fe-doped monolayer C2N-h2D**
   Sangyoon Lee and Geumbi Jung
   EDISON Challenge 2016

3. **Band Structure Engineering of Monolayer MoS2 by Surface Ligand Functionalization**
   Sangyoon Lee and Sufyan Ramzan
   EDISON Challenge 2015

4. **An Experimental Comparison of User Postures Between Tablet-based Reading Activities and Book-based Reading Activities**
   Sangyoon Lee
   KCC 2015

Extended Abstracts: Posters and Demos

1. **Verge-it: Gaze Interaction for a Binocular Head-Worn Display using Modulated Disparity Vergence Eye Movement**
   Sunggeun Ahn, Jeongmin Son, **Sangyoon Lee** and Geehyuk Lee
   CHI 2020

2. **MirrorPad: A Touchpad for Direct Pen Interaction on a Laptop**
   Sangyoon Lee and Geehyuk Lee
   ISS 2019

Patents

1. **COMPUTER SYSTEM FOR PROVIDING TACTILE INTERFACE FOR REAL-TIME TWO-DIMENSIONAL TACTILE INPUT/OUTPUT INTERACTION OF VISUALLY IMPAIRED PEOPLE, AND OPERATING METHOD THEREOF**
   US Patent Application. 17687011, 2022-03-04.

2. **METHOD FOR INPUTTING GAZE FOR DISPLAY AND DEVICES PERFORMING THE SAME**
   US Patent Application. 11023042, 2021-06-01.

3. **Method of Converting Word and Apparatuses Performing the Same**
   KR Patent Application. 10-2019-0060681, 2020-12-24.

WORK EXPERIENCE	**Steinfeld**	APR. 2021 – Present

Steinfeld   APR. 2021 – Present
AI Researcher
- 3D Reconstruction and Image Translation
Skills: Pytorch, Deep Learning techniques(Pix2Pix, CycleGAN, PointNet, PIFu, Point2Mesh, Diffusion models, etc.), GCP, OpenCV, PyMeshLab

Gold Spoon   MAY. 2015 – FEB. 2016
Software Engineer, Co-Founder
- Backend engineer
Skills: Django, Go, Meteor, MongoDB, AWS, React.js, Youtube API

Langpoo   JAN. 2015 – MAR. 2015
Software Engineer
- Backend engineer
Skills: Django, AWS, RabbitMQ, Android GCM

Graduate School of Science and Technology Policy, KAIST   JUN. 2014 – JAN. 2015
Work-study Program

- Homepage renewal

Computational Nanotech Lab, KAIST Jan. 2014 – Dec. 2015
Research Intern & Software Engineer
- Hybrid Interface Materials DB construction
- Application of the Machine Learning Algorithm to Electronic Structure Calculations
Skills: Django, Mysql, Scikit-learn, Machine learning techniques(Regression, Classification, Clustering, Dimensionality Reduction, etc.), Tensorflow
Publications:

1. **Application of the Machine Learning Algorithm to Electronic Structure Calculations: A Test Case of B/N-doped Graphene**
   Kim, et al
   KPS, 2016.
   - Contribution in developing the web application & machine learning techniques.

Interactive Computing Lab, KAIST Jan. 2014 – Mar. 2014
Research Intern
- Machine State Estimation Using Electric Current Measurement Sensor
Skills: Android

Social Computing Lab, KAIST May. 2013 – Jun. 2015
Research Intern & Software Engineer
- User Depression Mitigation Project
Skills: Facebook login API, Flask, Django, Html, Javascript, CSS
Publications:

1. **Manifestation of Depression and Loneliness on Social Networks: A Case Study of Young Adults on Facebook**
   Park, Sungkyu, et al
   CSCW, 2015.
   - Contribution in developing the web application.

Intelligence in Science & Technology, KISTI Jun. 2013 – Aug. 2013
Summer Intern
- Big data(scientist's bio) analysis and processing
Skills: Mysql, Java, Hadoop, MapReduce

ACTIVITIES | **CS Undergraduate Student Council, KAIST** Jan. 2014 – Jan. 2015
President

CS Undergraduate Student Council, KAIST Jan. 2013 – Jan. 2014
Vice Representative of '12

AWARDS | **CHI '21 Paper** Spring 2021
Honorable Mention Award

Google '20 Student Travel Grant Spring 2020
Student Travel Grant

Naver '19 PhD Fellowship Fall 2019
PhD Fellowship Award

ISS '19 Demonstration Fall 2019
Honorable Mention Demo Award

UIST '17 Student Innovation Contest Fall 2017
People's Choice award

OPEN SOURCE CONTRIBUTION	**Konlpy, Konlpy**	MAY. 2016 – Present

Konlpy, Konlpy — MAY. 2016 – Present
Python package for Korean natural language processing
Url: https://github.com/konlpy/konlpy

PinPoint, Naver — DEC. 2014 – Present
Pinpoint is an open source APM (Application Performance Management) tool for large-scale distributed systems written in Java
Url: https://github.com/naver/pinpoint

TEACHING EXPERIENCE

Teaching Assistant

CS330 Operating Systems and Lab	Fall 2020
CS584 Human-Computer Interaction	Fall 2019
CS550 Software Engineering	Spring 2019
CS584 Human-Computer Interaction	Fall 2018
CS420 Compiler Design	Fall 2016
CS220 Programming Principles	Spring 2016

Tutor

CS311 Computer Architecture	Fall 2016

INVITED TALKS

2D Tactile Interaction to Simultaneously Recognize and Touch Multiple Objects — FEB. 2022
HCI Korea

Coping with Mode Errors in Dual-language Keyboard — OCT. 2019
Hancom TechDay, Hancom

PROJECTS

Development of 5G based low latency device – edge cloud interaction technology   APR. 2020 – Present
Development of low-latency multi-participant collaborative interaction technology that analyzes and reflects user interaction experience response in virtual-real space linked VR/AR contents on 5G network
- Supported by Institute for Information & communications Technology Promotion(IITP) grant funded by the Korea government(MSIT)
Skills: Deep Learning techniques(CNN, GRU, etc.), VR & AR system development(Hololens and Oculus)

SuggestBot — SEP. 2017 – MAR. 2021
SuggestBot is a software component that identifies the user's needs and suggests an action
- Supported by Next-Generation Information Computing Development Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Science
Skills: Deep learning techniques(BERT, CNN, LSTM, GRU, etc.), Language modeling techniques(N-gram, DTW, PageRank, TF-IDF, etc.), Google Speech API, VR & AR system development(Hololens and Oculus)

ACADEMIC SERVICES

Reviewer
CHI'22, AH' 20, CHI' 19, MobileHCI' 19