



Seung Hyun Lee

CONTACT INFORMATION
Seung Hyun Lee
Seoul, Korea

 **Homepage**
 easter3163@korea.ac.kr

RESEARCH BACKGROUND
Computer Vision / Generative Models
Multimodal Generative Models
GAN, Diffusion Models, Large Language Models

EDUCATION
M.S. in Artificial Intelligence, Korea University, GPA: 4.44/4.5 Mar 2022– Feb 2024
Collaborated with **Dr. {Feng Yang, Irfan Essa, Glenn Entis, Yinxiao Li, Jiahui Yu, Han Zhang, Huiwen Chang, Innfarn Yoo}**, **Junjie Ke @ Google Research**
Collaborated with **Dr. Wonmin Byeon @ NVIDIA Research**
Advisor: **Prof. Sangpil Kim**
Thesis: Generative Models, Perception Algorithm
Advisor: **Prof. Jinkyu Kim**
Thesis: Representation Learning, Advisable AI
B.S. in Computer Science, University of Seoul, GPA: 3.76/4.5 Mar 2016– Feb 2022
2 years of absence for obligatory military service
Undergraduate Research Assistant
• Medical AI, Yonsei University Severance Hospital CCIDS

RESEARCH EXPERIENCE
Google Research, Mountain View, CA (Onsite) Jul 2023 - Mar 2024
Student Researcher @ Machine Perception Lab
Advisors: **Dr. Feng Yang, Dr. Yinxiao Li, Dr. Innfarn Yoo, Dr. Huiwen Chang**,
Projects: Image Generation Quality Improvement (**Extension**, < **20%**)
Naver Papago, Pangyo, Korea Dec 2020– Jun 2021
Research Intern @ Computer Vision Lab
Projects: Optical character recognition tracking
Yonsei University, Seoul, Korea Mar 2019– Nov 2020
Research Intern @ Severance Hospital CCIDS
Projects: Pathologic Complete Response Prediction after Neoadjuvant Chemoradiation Therapy for Rectal Cancer Using Radiomics and Deep Embedding Network of MRI

CONFERENCE PUBLICATIONS (* Equal contribution)
Seung hyun Lee, Wonseok Roh, Wonmin Byeon, SangHo Yoon, Chanyoung Kim, Jinkyu Kim*, Sangpil Kim*, “**Sound-Guided Semantic Image Manipulation**”, In **CVPR**, 2022.
Seung hyun Lee, Gyeongrok Oh, Wonmin Byeon, Chanyoung Kim, Won Jeong Ryoo, Sang Ho Yoon, Jihyun Bae, Jinkyu Kim*, Sangpil Kim*, “**Sound-Guided Semantic Video Generation**”, In **ECCV**, 2022.
Yujin Jeong, Won Jeong Ryoo, **Seung hyun Lee**, Da Bin Seo, Wonmin Byeon, Sangpil Kim, Jinkyu Kim, **The Power of Sound (TPoS): Audio Reactive Video Generation with Stable Diffusion**, **ICCV**, 2023.
Wonseok Roh, **Seung hyun Lee**, Won Jeong Ryoo, Gyeongrok Oh, Jakyung Lee, Soo Yeon Hwang, Hyung-gun Chi, Sangpil Kim, “**Functional Hand Type Prior for 3D Hand Pose Estimation and Action Recognition from Egocentric View Monocular Videos**”, **BMVC** Oral (< 5% acceptance rate), 2023.

PREPRINTS
Seung hyun Lee, Sieun Kim, Innfarn Yoo, Feng Yang, Donghyeon Cho, Youngseo Kim, Huiwen Chang, Jinkyu Kim*, Sangpil Kim*, “**Soundini: Sound-Guided Diffusion for Natural Video Editing**”, *Under review*.
Seung hyun Lee, Chanyoung Kim, Wonmin Byeon, SangHo Yoon, Jinkyu Kim*, Sangpil Kim*, “**LISA: Localized Image Stylization with Audio via Implicit Neural Representation**”, **Patern Recognition – Under review**.
Seung hyun Lee, Chanyoung Kim, Wonmin Byeon, Gyeongrok Oh, Jooyoung Lee, SangHo Yoon, Jinkyu Kim*, Sangpil Kim*, “**Robust Sound-Guided Image Manipulation**”, **Neural Networks–Under review**.

WORKSHOP PUBLICATIONS	<p>Seung hyun Lee, Sang Ho Yoon, *Jinkyu Kim, *Sangpil Kim. “Sound-Guided Semantic Image Manipulation”. In <i>NIPSW</i>–CtrlGen Workshop, 2021.</p> <p>Seung hyun Lee, Nahyuk Lee, Chanyoung Kim, Wonjeong Ryoo, Jinkyu Kim, Sangho Yoon, Sangpil Kim. “Audio-Guided Image Manipulation for Artistic Paintings”. In <i>NIPSW</i>–Machine Learning for Creativity and Design Workshop , 2021.</p>	
SKILLS	<p>Programming Languages: Python, C/C++, Java.</p> <p>Tools: JAX, PyTorch, TensorFlow</p>	
TEACHING EXPERIENCE	<p>Korea University, Seoul Korea</p> <ul style="list-style-type: none"> Teaching Assistant of Machine Learning (Spring 2023) 	
OTHER SERVICES	Pytorch Open Source Contribution, Pytorch Tutorial Translation (lead menti) President of Algorithm Club at University of Seoul Google Developer Student Clubs – University of Seoul, Korea Software Maestro 11th – Best Software talent discovery program, Korea SeoulMate – Buddy program for the international students, Korea	2021 2016–2021 2021 2020 2016
PATENTS	<p>Seunghyun Lee. “Image Quality Improvement Appratus Using Artificial Neural Network”. <i>Korea</i> 1020200021991, filed 20.02 issued 21.09.</p>	
REFERENCES	<p>Korea University</p> <ul style="list-style-type: none"> Prof. Sangpil Kim (Advisor) <i>Assistant Professor</i> Prof. Jinkyu Kim (Thesis Advisory Committee) <i>Assistant Professor</i> <p>Google Research</p> <ul style="list-style-type: none"> Dr. Feng Yang (Internship Mentor) <i>Research Scientist</i> Dr. Yinxiao Li (Research Mentor) <i>Research Scientist</i> Dr. Innfarn Yoo (Research Mentor) <i>Research Scientist</i> <p>Open AI</p> <ul style="list-style-type: none"> Dr. Huiwen Chang (Research Mentor) <i>Research Scientist</i> <p>NVIDIA Research</p> <ul style="list-style-type: none"> Dr. Wonmin Byeon (Research Mentor) <i>Research Scientist</i> 	