Jinwoo Kim (Ph.D. Candidate)

my github
my linkedin
my personal site
my email

Education

Yonsei University – Seoul, Korea Mar. 2016 – Present
M.S. and Ph.D. in Electrical and Electronic Engineering [link] *Supervised by Prof. Sanghoon Lee*

Hongik University – Seoul, Korea Mar. 2009 – Feb. 2016
B.S. in Electrical and Electronic Engineering

Research Interest

Perceptual Image/Video Processing

Based on Signal Processing

- Image/Video Quality Assessment, Saliency Prediction
- Augment & Virtual Reality (AR/VR) Cybersickness Prediction

Low-level Computer Vision

Based on Deep Learning (CNN, LSTM, Graph-Net and Transformer)

- Image/Video Inpainting, Image/Video Colorization, Photo Enhancement
- Super Resolution, Frame Interpolation

3D Reconstruction

Based on Single and Multi-View Images

- 2D Image to 3D Point-cloud Reconstruction
- Image-based 3D Human Shape Estimation

Publications

Conference

A Brand New Dance Partner:Music-Conditioned Pluralistic Dancing Controlled by Multiple Dance Genres
Jinwoo Kim, H. Oh, S. Kim, H. Tong and S. Lee
Conference on Computer Vision and Pattern Recognition (CVPR2022)

A Deep Cybersickness Predictor based on Brain Signal Analysis for Virtual Reality Content
Jinwoo Kim, W. Kim, H. Oh and S. Lee
International Conference on Computer Vision (ICCV 2019) [pdf]

CNN-Based Blind Quality Prediction on Stereoscopic Images via Patch to Image Feature Pooling
Jinwoo Kim, S. Ahn, H. Oh and S. Lee
International Conference on Image Processing (ICIP 2019) [pdf]

Deep Video Quality Assessor: From Spatio-temporal Visual Sensitivity to A Convolutional Neural Aggregation Network
W. Kim, J. Kim, S. Ahn, **Jinwoo Kim** and S. Lee
European Conference on Computer Vision (ECCV 2018) [pdf]

Visual Preference Prediction for Enhanced Images on Ultra-High-Definition Display
S. Ahn, W. Kim, **Jinwoo Kim**, J. Kim and S. Lee
International Conference on Image Processing (ICIP 2018) [pdf]

Virtual Reality Sickness Predictor: Analysis of Visual-Vestibular Conflict and VR contents
J. Kim, W. Kim, S. Ahn, **Jinwoo Kim** and S. Lee
10th International Conference on Quality of Multimedia Experience (QoMEX 2018) [pdf]

Journal

Deep Transformer based Video Inpainting Empowered by Fast Fourier Tokenization (Submitted)
Jinwoo Kim, H. Oh and S. Lee
IEEE Transactions on Circuits and Systems for Video Technology (IEEE TIP, IF 10.856)

Progressive Contextual Aggregation Empowered by Pixel-wise Dense Detector for Image Inpainting (Minor revision)
Jinwoo Kim, W. Kim, H. Oh and S. Lee
IEEE Transactions on Image Processing (IEEE TIP, IF 10.856)

Diverse and Adjustable Versatile Image Enhancer
W. Kim, A. Nguyen, **Jinwoo Kim**, J. Kim H. Oh and S. Lee
IEEE Access

A Deep Motion Sickness Predictor Induced by Visual Stimuli in Virtual Reality
Jinwoo Kim, H. Oh, W. Kim, S. Choi, W. Son and S. Lee
IEEE Transactions on Neural Networks and Learning System (IEEE TNNLS, IF 10.451) [pdf]

Modern Trends on Quality of Experience Assessment and Future Work
W. Kim, S. Ahn, A. Nguyen, **Jinwoo Kim**, J. Kim, H. Oh and S. Lee
APSIPA Transactions on Signal and Information Processing [pdf]

Enhancement of Visual Comfort and Sense of Presence on Stereoscopic 3D Images
H. Oh, J. Kim, **Jinwoo Kim**, T. Kim, S. Lee and A. C. Bovik
IEEE Transactions on Image Processing (IEEE TIP, IF 4.828) [pdf]

Experience

Project Experience

- 인간중심의 실감방송 안전성 및 콘텐츠 품질 평가 기준 연구 | 16.03–17.02 | IITP
- 병사들에게 실전과 같은 가상훈련 환경을 제공하는 소프트웨어 기술 | 16.03–17.02 | IITP
- VR 멀미 저감을 위한 휴먼팩터 파라미터 제어기술 개발 (표준화연계) | 17.03–19.12 | IITP
- SSIAT형 CCTV 클라우드 플랫폼 기술 개발 (이상행동감지) | 19.01–Present | IITP
- 5G 기반 저지연 디바이스 엣지클라우드 인터렉션 기술 개발 | 20.01–Present | IITP
- 시각 인지 및 인공지능을 활용한 VR 감성 핵심기술 연구 | 16.06–Present | 한국연구재단
- 시각적 감성인지 기반의 시공간 도메인 확장 최적화 기술 연구 | 20.03–Present | 한국연구재단
- 화질 처리 예측 모델링 적용 신방식 압축 구조 연구 | 17.03–18.03 | 삼성전자
- 사용자 감성경함 극대화기반 시각적 피로도/현장감 정량화 기술 개발 | 17.12–Present | 삼성전자
- 자세 인식을 통한 촬영된 사람의 신체 일부 이미지 생성 (C-Lab (SR) Beyond Frame) | 20.08–20.10 | 삼성전자

Standard Experience

- IEEE PAR Standard for the Perceptual Quality Assessment of Three Dimensional (3D) and Ultra High Definition (UHD) Contents, in IEEE Std 3333.1.2. [link]
- IEEE PAR Standard for the Deep Learning-Based Assessment of Visual Experience Based on Human Factors, in IEEE Std 3333.1.3. [link]
- 3DTV Broadcasting Safety Guideline, TTAK.KO-07.0086/R4.
- Viewing Safety Guideline for Vehicle HUD Content, TTAK.KO-10.0878.
- Viewing Safety Guideline for UHD Content, TTAK.KO-10.0859/R1.
- Viewing Safety Guideline for Wearable Content, TTAK.KO-10.0860/R1.
- Viewing Safety Guideline for Portable Content, TTAK.KO-10.0861/R1.

Awards

- Certificate of Appreciation for International Standard (IEEE-SA WG P3333.1), IEEE Computer Society, 2019. **Jinwoo Kim** et. al.
- Best Student paper award, IEEE QoMEX, 2018, , "VRSP:Analysis of Visual-Vestibular Conflict and VR Contents". **Jinwoo Kim** et. al.

Technical Skills, Language Skills, and Interests

OS: Windows, Linux
Programming Languages: C/C++, Python, Matlab
Libraries: Pytorch , TensorFlow, Numpy, OpenCV, OpenGL
Version Control: Git
Writing: LaTeX, Office
Languages: English (fluent)
Interests: Perceptual Image/Video Processing, Low-level Computer Vision, Deep Learning and 3D Reconstruction