Sangwon **Kim**

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Education

Keimyung University — *Daegu, S.Korea*

Ph.D. in Computer Engineering - Dissertation: Visually Explainable Artificial Intelligence with Semantic Interpretation — *2020 - 2024*

M.S. in Computer Engineering - Thesis: Interpretable Deep Random Forests — *2018 - 2020*

B.S. in Computer Engineering - Summa Cum Laude — *2012 - 2018*

Selected Publications

Neural Tree Decoder for Interpretation of Vision Transformers — *IEEE Transactions on Artificial Intelligence*

Sangwon Kim, *Byoung Chul Ko*

Cross-Modal Learning with 3D Deformable Attention for Action Recognition — *ICCV 2023*

Sangwon Kim, *Dasom Ahn, Byoung Chul Ko*

STAR-Transformer: A Spatio-temporal Cross Attention Transformer for Human Action Recognition — *WACV 2023*

Dasom Ahn, ***Sangwon Kim****, Hyunsu Hong, Byoung Chul Ko*

ViT-NeT: Interpretable Vision Transformers with Neural Tree Decoder — *ICML 2022*

Sangwon Kim, *Jaeyeal Nam, Byoung Chul Ko*

Is the Surrogate Model Interpretable? — *NeurIPS 2020 Workshop*

Sangwon Kim, *Mira Jeong, Byoung Chul Ko*

Deep Coupling of Random Ferns — *CVPR 2019 Workshop*

Sangwon Kim, *Mira Jeong, Deokwoo Lee, Byoung Chul Ko*

Experience

Qualcomm Institute, UC San Diego — *San Diego, CA, USA*

Research and development intern — *2017 - 2018*

European Institute of Technology (EPITECH) — *Paris, France*

Student intern — *Winter 2017*

Qualcomm Institute, UC San Diego — *San Diego, CA, USA*

Student intern — *Summer 2016*

Academic services

Samsung Advanced Institute of Technology (SAIT) — *S.Korea*

Invited Talk <Explainable AI: about vision and intrinsic interpretation> — *2022*

Reviewing

Journal - IEEE TMM, IEEE TCSVT, ACM TKDD

Conference - CVPR, WACV

Honors & Awards

International

2020 **7th Place**, MOT Challenge, CVPR 2020 — *Seattle, WA, USA*

Domestic

2023 **Best Paper Award**, The Institute of Electronics and Information Engineers (IEIE)

2022 **Best Paper Award**, The Institute of Electronics and Information Engineers (IEIE)

2021 **Research Fund**, NRF - Academic Research Support Project in Science and Engineering (40M won, 2 years)

Scholarship, SAMIL Foundation (Full tuition, 3 semesters)

2020 **Best Paper Award**, The Institute of Electronics and Information Engineers (IEIE)

Best Paper Award, The Korean Institute of Information Scientists and Engineers (KIISE)

Full Publications

Conferences

Reshaping Masked Autoencoders in Probabilistic Latent Embedding with Energy-Based Models *ECCV 2024 (In Preparation)*

Dasom Ahn, **Sangwon Kim***, Chanhyuk Jung, Byoung Chul Ko*

CooK: Reasonable Scene Graph Generation Learning Strategy with Co-Occurrence Knowledge *ICML 2024 (In Preparation)*

*Hyeongjin Kim, **Sangwon Kim**, Byoung Chul Ko*

Semantic Scene Graph Generation Based on an Edge Dual Scene Graph *CVPR 2024 (Under Review)*

Hyeongjin Kim, **Sangwon Kim***, Byoung Chul Ko*

Cross-Modal Learning with 3D Deformable Attention for Action Recognition *ICCV 2023*

***Sangwon Kim**, Dasom Ahn, Byoung Chul Ko*

STAR-Transformer: A Spatio-temporal Cross Attention Transformer for Human Action Recognition *WACV 2023*

*Dasom Ahn, **Sangwon Kim**, Hyunsu Hong, Byoung Chul Ko*

ViT-NeT: Interpretable Vision Transformers with Neural Tree Decoder *ICML 2022*

***Sangwon Kim**, Jaeyeal Nam, Byoung Chul Ko*

Shift-ViT : Siamese Vision Transformer using Shifted Branches *ITC-CSCC 2022*

*Dasom Ahn, Hyeongjin Kim, **Sangwon Kim**, Byoung Chul Ko*

Image Registration Between Real Image and Virtual Image Based on Self-Supervised Keypoint Learning *ACPR 2021*

***Sangwon Kim**, In-Su Jang, Byoung Chul Ko*

Is the Surrogate Model Interpretable? *NeurIPS 2020 Workshop*

***Sangwon Kim**, Mira Jeong, Byoung Chul Ko*

Fast Multiple Object Tracking Using Siamese Random Forest Without Online Tracker Updating *CVPR 2020 Workshop*

*Jimi Lee, **Sangwon Kim**, Byoung Chul Ko*

Deep Coupling of Random Ferns *CVPR 2019 Workshop*

***Sangwon Kim**, Mira Jeong, Deokwoo Lee, Byoung Chul Ko*

Depth-map Estimation Using Combination of Global Deep Network and Local Deep Random Forest *Electronic Imaging 2019*

*SangJun Kim, **Sangwon Kim**, Deokwoo Lee, Byoung Chul Ko*

Journals

Concept Graph Embedding Models for Enhanced Interpretability and Accuracy *IJCV (Under Review)*

***Sangwon Kim**, Hyeongjin Kim, Byoung Chul Ko*

Neural Tree Decoder for Interpretation of Vision Transformers *IEEE Transactions on Artificial Intelligence*

***Sangwon Kim**, Byoung Chul Ko*

Self-Supervised Keypoint Detection Based on Multi-layer Random Forest Regressor *IEEE Access*

***Sangwon Kim**, Mira Jeong, Byoung Chul Ko*

Online Multiple Object Tracking Using Rule Distillated Siamese Random Forest *IEEE Access*

*Jimi Lee, **Sangwon Kim**, Byoung Chul Ko*

Building Deep Random Ferns Without Backpropagation *IEEE Access*

***Sangwon Kim**, Byoung Chul Ko*

STAR++: Rethinking Spatio-Temporal Cross Attention Transformer for Video Action Recognition *Springer Applied Intelligence*

*Dasom Ahn, **Sangwon Kim**, Byoung Chul Ko*

SSL-MOT: Self-Supervised Learning Based Multi-Object Tracking *Springer Applied Intelligence*

***Sangwon Kim**, Jimi Lee, Byoung Chul Ko*

Lightweight Surrogate Random Forest Supporting for Model Simplification and Feature Relevance *Springer Applied Intelligence*

***Sangwon Kim**, Mira Jeong, Byoung Chul Ko*

Image Registration Between Real Image and Virtual Image Based on Self-supervised Keypoint Learning *Springer LNCS*

***Sangwon Kim**, In-Su Jang, Byoung Chul Ko*

Facial Expression Recognition Based on Squeeze Vision Transformer *MDPI Sensors*

***Sangwon Kim**, Jaeyeal Nam, Byoung Chul Ko*

Model Simplification of Deep Random Forest for Real-Time Applications of Various Sensor Data *MDPI Sensors*

***Sangwon Kim**, Byoung Chul Ko, Jaeyeal Nam*

Energy Efficient Pupil Tracking Based on Rule Distillation of Cascade Regression Forest *MDPI Sensors*

Sangwon Kim, *Mira Jeong, Byoung Chul Ko*

Fast Depth Estimation in a Single Image Using Lightweight Efficient Neural Network *MDPI Sensors*

Sangwon Kim, *Jaeyeal Nam, Byoung Chul Ko*