Dahun Kim

Research Scientist, Google Brain.

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https://mcahny.github.io

Research Interests	• **Deep Learning, Computer Vision** Visual perception, vision and language, video learning

Research Experiences	• **Google Brain**, MTV, CA Research Scientist	Jul.2022 - Present
	• **Google AI**, Virtual (with LA, CA) Research Intern: on "video mask transformer" Mentors: Liang-Chieh Chen, Jun Xie	May.2021 - Jan.2022
	• **Google Brain**, Virtual (with MTV, CA) Research Intern: on "detect everything" Mentors: Weicheng Kuo, Tsung-Yi Lin, Anelia Angelova	Jun.2020 - Nov.2020
	• **Adobe Research**, San Jose, CA, Research Intern: on "video panoptic segmentation" Mentor: Joon-Young Lee	Jun.2019 - Sep.2019

Education	• **Ph.D.** in Electrical Engineering, **KAIST,** Advisor: Prof. In So Kweon Thesis: "Learning Dense Pixel Features for Video Processing and Understanding"	Mar.2018 - Feb.2022
	• **M.S.** in Electrical Engineering, **KAIST,** Advisor: Prof. In So Kweon Thesis: "Reducing Human Supervision in Supervised Learning"	Mar.2016 - Feb.2018
	• **B.S.** in Electrical Engineering, **KAIST,**	Feb.2012 - Feb.2016

Publications • **Peer-Reviewed Conferences and Journals - Selected:**

019. **Dahun Kim**, A. Angelova, W. Kuo
"Region-Aware Pretraining for Open-Vocabulary Object Detection with Vision Transformers",
in **CVPR 2023**, Vancouver, Canada

018. Y. Kwon, **Dahun Kim**, D. Ceylan, H. Fuchs
"Neural Image-based Avatars: Generalizable Radiance Fields for Human Avatar Modeling",
in **ICLR 2023**, Kigali, Rwanda

017. **Dahun Kim**, S. Woo, J.-Y. Lee, I. S. Kweon
"Dense Pixel-level Interpretation of Dynamic Scenes with Video Panoptic Segmentation",
in **TIP 2022**: *IEEE Trans. on Image Processing*, IF=10.856

016. **Dahun Kim**, J. Xie, H. Wang, S. Qiao, H.-S. Kim, H. Adam, I.S. Kweon, L.-C. Chen
"TubeFormer-DeepLab: video mask transformer",
in **CVPR 2022**, New Orleans, USA

015. Q. Yu, H. Wang, **Dahun Kim**, S. Qiao, M. Collins, Y. Zhu, H. Adam, A. Yuille, L.-C. Chen
"CMT-DeepLab: dynamic clustering mask transformers for panoptic segmentation",
in **CVPR 2022 (Oral)**, New Orleans, USA

014. **Dahun Kim**, T.-Y. Lin, A. Angelova, I. S. Kweon, W. Kuo
"Learning open-world object proposals without learning to classify",
in **RA-L**: *IEEE Robotics and Automation Letters* and **ICRA 2022**, Philadelphia, USA

013. Y. Kwon, **Dahun Kim**, D. Ceylan, H. Fuchs
"Neural Human Performer: learning generalizable radiance fields for human performance rendering", in **NeurIPS 2021 (Spotlight)**, Virtual (Acceptance: < 3.0%)

012. S. Woo, **Dahun Kim**, J.-Y. Lee, I. S. Kweon,
"Learning to associate every segment for video panoptic segmentation".
in **CVPR 2021**, Virtual

011. Y. Kwon, S. Petrangeli, **Dahun Kim**, H. Wang, V. Swaminathan, H. Fuchs,
"Rotationally-Temporally Consistent Novel View Synthesis for Human Performance Video",
in **ECCV 2020 (Spotlight)**, Virtual (Acceptance: $265/5025 \approx 5.3\%$)

010. **Dahun Kim**, S. Woo, J.-Y. Lee, I. S. Kweon,
"Video panoptic segmentation",
in **CVPR 2020 (Oral)**, Virtual (Acceptance: $335/6656 \approx 5.0\%$)

009. **Dahun Kim***, S. Woo*, J.-Y. Lee, I. S. Kweon,
"Recurrent temporal aggregation framework for deep video inpainting",
in **TPAMI 2020**: *IEEE Trans. on Pattern Analysis and Machine Intelligence*, IF=17.730

008. Y. Jung, **Dahun Kim**, S. Woo, K. Kim, S. Kim, I. S. Kweon,
"Hide-and-Tell: Learning to bridge photo streams for visual storytelling",
in **AAAI 2020**, New York, USA (Acceptance: $1591/7737 \approx 20.6\%$)

007. **Dahun Kim***, S. Woo*, J.-Y. Lee, I. S. Kweon,
"Deep video inpainting",
in **CVPR 2019**, Long Beach, USA (Acceptance: $1294/5160 \approx 25.2\%$)

006. **Dahun Kim***, S. Woo*, J.-Y. Lee, I. S. Kweon,
"Deep blind video decaptioning by temporal aggregation and recurrence",
in **CVPR 2019**, Long Beach, USA (Acceptance: $1294/5160 \approx 25.2\%$)

005. **Dahun Kim**, D. Cho, I. S. Kweon,
"Self-supervised video representation learning with space-time cubic puzzles",
in **AAAI 2019 (Oral)**, Honolulu, USA (Acceptance: $459/7095 \approx 6.5\%$)

004. Y. Jung, D. Cho, **Dahun Kim**, S. Woo, I. S. Kweon,
"Discriminative feature learning for unsupervised video summarization",
in **AAAI 2019 (Oral)**, Honolulu, USA (Acceptance: $459/7095 \approx 6.5\%$)

003. S. Woo*, **Dahun Kim***, D. Cho, I. S. Kweon,
"LinkNet: relational embedding for scene graph",
in **NeurIPS 2018**, Montreal, Canada (Acceptance: $1011/4856 \approx 20.8\%$)

002. **Dahun Kim**, D. Cho, D. Yoo, I. S. Kweon,
"Learning image representations by completing damaged jigsaw puzzles",
in **WACV 2018 (Oral)**, Lake Tahoe, USA

001. **Dahun Kim**, D. Cho, D. Yoo, I. S. Kweon,
"Two-phase learning for weakly supervised object localization",
in **ICCV 2017**, Venice, Italy (Acceptance: $621/2143 \approx 28.9\%$)

- **Other publications:**

Y. Kwon, S. Petrangeli, **Dahun Kim**, H. Wang, V. Swaminathan, H. Fuchs
"Tailor Me: An Editing Network for Fashion Attribute Shape Manipulation".
in **WACV 2022**

M. Weber, H. Wang, S. Qiao, J. Xie, M. D. Collins, Y. Zhu, L. Yuan, **Dahun Kim**, Q. Yu,
D. Cremers, L. Leal-Taixe, A. L. Yuille, F. Schroff, H. Adam, L.-C. Chen
"DeepLab2: a TensorFlow library for deep labeling". Technical Report, **arXiv 2021**

M. Kim, S. Woo, **Dahun Kim**, I. S. Kweon,
"The Devil is in the Boundary: Exploiting Boundary Representation for Basis-based Instance
Segmentation". in **WACV 2021 (Oral)**

S. Woo, **Dahun Kim**, J.-Y. Lee, I. S. Kweon
"Global Context and Geometric Priors for Effective Non-Local Self-Attention".
in **BMVC 2021**

Y. Kwon, S. Petrangeli, **Dahun Kim**, H. Wang, H. Fuchs, V. Swaminathan,
"Rotationally-Consistent Novel View Synthesis for Humans",
in ACM **MM 2020**, Virtual (Acceptance: $472/1698 \approx 27.8\%$)

S. Woo, **Dahun Kim**, K. Park, J.-Y. Lee, I. S. Kweon,
"Align-and-Attend Network for Globally and Locally Coherent Video Inpainting",
in **BMVC 2020** (Acceptance: $195/670 \approx 29.1\%$)

K. Park, S. Woo, **Dahun Kim**, D. Cho, I. S. Kweon,
"Preserving Semantic and Temporal Consistency for Unpaired Video-to-Video Translation",
in ACM **MM 2019**, Nice, France (Acceptance: $252/936 \approx 26.9\%$)

D. Cho, Y. Jung, F. Rameau, **Dahun Kim**, S. Woo, I. S. Kweon,
"Video Retargeting: Trade-off between Content Preservation and Spatio-temporal Consistency",
in ACM **MM 2019**, Nice, France (Acceptance: $252/936 \approx 26.9\%$)

Academic Services	• Area Chair in CVPR 2023
	• CVPR [20, 21, 22], NeurIPS [20, 21], ECCV [20], ICCV [19, 21], ICLR [21], AAAI [20, 21, 22]
	• TPAMI, TNNLS, TIP, EuroGraphics
Patents	P4. Electronic Device and Control Method of Same (US Patent App. 17/554,142)
	P3. Video Panoptic Segmentation (US Patent App. 16/852,647)
	P2. Panoptic Segmentation (US Patent 11,256,960)
	P1. Method and Device for Hierarchical Learning of Neural Network Based on Weakly Supervised Learning (US Patent App. 16/758,089)

Awards	
and Honors	• Best Ph.D. Thesis Award, EE, KAIST — Apr.2022
	• Bronze Award, 28th HumanTech Paper Award, — Feb.2022
	Samsung Electronics Co., Ltd. ($5,000)
	• Qualcomm Innovation Award (Korea) 2021 — Nov.2021
	• Outstanding Reviewers Award, CVPR 2021 — Aug.2021
	• Outstanding Reviewers Award, ECCV 2020 — Aug.2020
	• Microsoft Research Asia (MSRA) Ph.D Fellowship 2019 Winner ($10,000) — Oct.2019
	• 1-st Place Award in ChaLearnLAP 2018 Inpainting Challenge — Sep.2018
	Track 2: video decaptioning (ECCV2018 Challenge)
	• Global Ph.D Fellowship, National Research Foundation of Korea — Mar.2018 - Feb.2021
	(National Minister fellowship – ≈ $60,000 + 3-year full scholarship)
	• KAIST-Samsung Industry-University Cooperation, Best Paper Award ($3,000) — Jul.2020
	• Bronze Award, 27th HumanTech Paper Award, — Feb.2021
	Samsung Electronics Co., Ltd. ($5,000)
	• Honorable Mention, 25th HumanTech Paper Award, — Feb.2019
	Samsung Electronics Co., Ltd. ($2,000)
	• Lab Student Representative (over 30 members), — Sep.2019 - Jul.2020
	• Bronze Prize, Best Paper Award, 31th IPIU — Feb.2019
	• International Computer Vision Summer School (ICVSS), Sicily, Italy — Jul.2018

References

Prof. In So Kweon (M.S. - Ph.D. advisor at KAIST)
KEPCO Chair Professor, School of EE, KAIST
Email: iskweon77@kaist.ac.kr, +82-42-350-5465

Dr. Joon-Young Lee (Internship mentor)
Senior Research Scientist, Adobe Research
Email: jolee@adobe.com

Dr. Liang-Chieh Chen (Internship mentor)
Research Scientist, ByteDance Research
Email: lcchen@cs.ucla.edu

Dr. Jun Xie (Internship mentor)
Staff Software Engineer, Google Research

Dr. Weicheng Kuo (Internship mentor)
Senior Research Scientist, Google Brain
Email: weicheng@google.com

Dr. Tsung-Yi Lin (Internship mentor)
Senior Research Scientist, Nvidia Research
Email: tsungyilin87@gmail.com