Dahun Kim

Ph.D. Candidate, Robotics and Computer Vision Lab.
Korea Advanced Institute of Science and Technology (KAIST)

mcahny@kaist.ac.kr
https://mcahny.github.io
+82-10-3708-0726

Research Interests

- **Deep Learning;** Learning with video data, Learning with minimal human supervision
- **Computer Vision;** Image/Video understanding (pixel level, high level), Recognition, Image/Video Processing, Representation learning

Research Experiences

- **Google AI**, Los Angeles, CA, (virtual) May.2021 - Jan.2022
  Student Researcher
  on "end-to-end video segmentation with transformer"
  Mentor: Liang-Chieh Chen
- **Google Brain**, Mountain View, CA, (virtual) Jun.2020 - Nov.2020
  Research Intern, Robotics Group, Robot Vision team
  on "detect everything" - learning open-world object proposals.
  Mentors: Weicheng Kuo, Tsung-Yi Lin, Anelia Angelova
- **Adobe Research**, San Jose, CA, Jun.2019 - Sep.2019
  Research Intern, Deep Learning Group, Creative Intelligence Lab
  on"video panoptic segmentation" - segmenting and tracking every pixels.
  Mentor: Joon-Young Lee

Education

- **Ph.D.** in Electrical Engineering, **KAIST,** Mar.2018 - Present
  Advisor: Prof. In So Kweon
  Thesis: "Learning Spatial-Temporal Context for Dense Pixel Prediction in Video"
- **M.S.** in Electrical Engineering, **KAIST,** Mar.2016 - Feb.2018
  Advisor: Prof. In So Kweon
  Thesis: "Reducing Human Supervision in Supervised Learning"
- **B.S.** in Electrical Engineering, **KAIST,** Feb.2012 - Feb.2016

Publications

- **Preprints:**

P3. **Dahun Kim**, T.-Y. Lin, A. Angelova, I. S. Kweon, W. Kuo
"Learning Open-World Object Proposals without Learning to Classify".
Under review, 2021

P2. S. Woo, **Dahun Kim**, J.-Y. Lee, I. S. Kweon
"Global Context and Geometric Priors for Effective Non-Local Self-Attention".
Under review, 2021

P1. 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**

- **Peer-Reviewed Conferences - Selected:**

C17. Y. Kwon, **Dahun Kim**, D. Ceylan, H. Fuchs
"Neural Human Performer: Learning Generalizable Radiance Fields for Human Performance Rendering". in **NeurIPS 2021 (Spotlight)** (Acceptance: $< 3.0\%$)

C16. S. Woo, **Dahun Kim**, J.-Y. Lee, I. S. Kweon,
"Learning to Associate Every Segment for Video Panoptic Segmentation".
in **CVPR 2021**

C15. 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**

C14. Y. Kwon, S. Petrangeli, **Dahun Kim**, H. Wang, H. Fuchs, V. Swaminathan,
"Rotationally-Consistent Novel View Synthesis for Humans",
in ACM **MM 2020** (Acceptance: 472/1698 $\approx$ 27.8%)

C13. 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%)

C12. Y. Kwon, S. Petrangeli, **Dahun Kim**, H. Wang, E. Park, V. Swaminathan, H. Fuchs,
"Rotationally-Temporally Consistent Novel-View Synthesis of Human Performance Video",
in **ECCV 2020 (Spotlight)** (Acceptance: 265/5025 $\approx$ 5.3%)

C11. **Dahun Kim**, S. Woo, J.-Y. Lee, I. S. Kweon,
"Video Panoptic Segmentation",
in **CVPR 2020 (Oral)** (Acceptance: 335/6656 $\approx$ 5.0%)

C10. 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%)

C09. 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%)

C08. 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%)

C07. **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%)

C06. **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%)

C05. **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%)

C04. 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%)

C03. 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%)

C02. **Dahun Kim**, D. Cho, D. Yoo, I. S. Kweon,
"Learning Image Representations by Completing Damaged Jigsaw Puzzles",
in **WACV 2018 (Oral)**, Lake Tahoe, USA

C01. **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 ≈ 28.9%)

• **Peer-Reviewed Journals:**

J1. **Dahun Kim***, S. Woo*, J.-Y. Lee, I. S. Kweon,
"Recurrent Temporal Aggregation Framework for Deep Video Inpainting",
in *IEEE Trans. on Pattern Analysis and Machine Intelligence* (**TPAMI 2020**), IF=17.730

Reviewer Experiences

• CVPR, NeurIPS, ECCV, ICCV, ICML, ICLR, AAAI
• TPAMI, TNNLS, TIP

Awards and Honors

• 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. ($2,000)
• 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

Teaching Experiences

• Teaching assistant at EE dept., KAIST
EE735 Computer Vision (Fall, 2019)
EE898 Advanced Topics in Deep Learning for Robotics and Vision (Spring, 2018)
EE305 Introduction to electronics lab. (Spring, 2017)
EE209 Programming Structures for Electrical Engineering (Fall, 2017)

Computer Skills

Languages: Python, Matlab, Lua
Libraries: Pytorch, Tensorflow, Caffe

Languages

English(fluent), Korean(native)

References

Prof. In So Kweon
School of Electrical Engineering, KAIST
Email: iskweon77@kaist.ac.kr
Homepage: http://rcv.kaist.ac.kr
Relationship: M.S. - Ph.D. advisor in KAIST