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Dawit Mureja Argaw

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Ph.D. graduate from KAIST in Electrical Engineering with a B.S. from the same institution. Research focuses on multimodal video understanding and efficient generative modeling, particularly for long-form content. Currently a Postdoctoral Researcher at KAIST's Multimodal AI Lab (Jang Young Sil Fellow). Gained practical experience through research internships at NVIDIA, Adobe and KAUST. Interested in multimodal AI development across vision, language, and audio.

Experience

Postdoctoral Researcher
Mar 2025 – Present

Multimodal AI Lab, KAIST, Daejeon, South Korea

- Supported by the Jang Young Sil Fellowship, focusing on advanced research in multimodal AI.

Research Intern
Nov 2023 – Sep 2024

NVIDIA, Santa Clara, CA, USA (Remote)

- Developed novel methods for efficient video tokenization, delivering state-of-the-art results in quality, compression, and token efficiency.
- Contributions led to two U.S. patent filings, integration into NVIDIA's Cosmos tokenizer, an ICLR 2025 publication, and an ICCV 2025 submission.

Research Intern
May 2023 – Sep 2023

Adobe, San Jose, CA, USA

- Engineered scalable video summarization dataset generation (250K+ synthetic pairs via LLMs) and developed a state-of-the-art autoregressive summarization model.
- Work resulted in a CVPR 2024 publication, a U.S. patent filing, and technology transfer within Adobe.

Research Intern
Nov 2022 – May 2023

KAUST, Thuwal, Saudi Arabia (Remote)

- Developed Trailer Generation Transformer (TGT), the first large-scale AI framework for automated movie trailer generation from full-length movies.
- Led to a first-author publication at CVPR 2024.

Research Intern
Aug 2021 – Nov 2021

Adobe, San Jose, CA, USA (Remote)

- Co-developed the "Anatomy of Video Editing" benchmark dataset (ECCV 2022 publication).
- Initiated a long-range multimodal pretraining strategy, foundational for a state-of-the-art model (23 tasks) and an ICCV 2023 first-author publication.

Graduate Research Assistant
Aug 2018 – Feb 2025

KAIST, Daejeon, South Korea

- Conducted Ph.D. research on deep learning for long-form video understanding and generative modeling.
- Key Accomplishments: First-authored 10+ publications at top-tier venues (CVPR, ICLR, ICCV, ECCV, AAAI, WACV); Presented research at major international conferences; Received multiple Outstanding Reviewer Awards (NeurIPS, ICCV, ECCV).

Education

Ph.D. in Electrical Engineering *Aug 2018 – Feb 2025*

KAIST, *Daejeon, South Korea*

Dissertation: "Deep Long-form Video Understanding"
Advisors: Prof. Joon Son Chung (2023–2025), Prof. In So Kweon (2018–2023)

B.S. in Electrical Engineering *Sep 2014 – Aug 2018*

KAIST, *Daejeon, South Korea*

GPA: 3.9 / 4.3 (Magna Cum Laude)

Publications

[1] *MambaVision for Discrete Video Tokenization with Channel-Split Quantization*
Dawit Mureja Argaw, Xian Liu, Joon Son Chung, Ming-Yu Liu, Fitsum Reda
Under Review, 2025

[2] *High-Quality Joint Image and Video Tokenization with Causal VAE*
Dawit Mureja Argaw, Xian Liu, Qinsheng Zhang, Joon Son Chung, Ming-Yu Liu, Fitsum Reda
International Conference on Learning Representations (**ICLR**), 2025 [PDF]

[3] *Scaling Up Video Summarization Pretraining with Large Language Models*
Dawit Mureja Argaw, Seunghyun Yoon, Fabian Caba Heilbron, Hanieh Deilamsalehy, Trung Bui, Zhaowen Wang, Franck Dernoncourt, Joon Son Chung
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024 [PDF]

[4] *Towards Automated Movie Trailer Generation*
Dawit Mureja Argaw, Mattia Soldan, Alejandro Pardo, Chen Zhao, Fabian Caba Heilbron, Joon Son Chung, Bernard Ghanem
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024 [PDF]

[5] *Long-range Multimodal Pretraining for Movie Understanding*
Dawit Mureja Argaw, Joon-Young Lee, Markus Woodson, In So Kweon, Fabian Caba Heilbron
International Conference on Computer Vision (**ICCV**), 2023 [PDF]

[6] *The Anatomy of Video Editing: A Dataset and Benchmark Suite for AI-Assisted Video Editing*
Dawit Mureja Argaw, Fabian Caba Heilbron, Joon-Young Lee, Markus Woodson, In So Kweon
European Conference on Computer Vision (**ECCV**), 2022 [PDF]

[7] *Long-term Video Frame Interpolation via Feature Propagation*
Dawit Mureja Argaw, In So Kweon
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022 [PDF]

[8] *Motion-blurred Video Interpolation and Extrapolation*
Dawit Mureja Argaw, Junsik Kim, Francois Rameau, In So Kweon
Association for the Advancement of Artificial Intelligence (**AAAI**), 2021 [PDF]

[9] *Optical Flow Estimation from a Single Motion-blurred Image*
Dawit Mureja Argaw, Junsik Kim, Francois Rameau, Jae Won Cho, In So Kweon
Association for the Advancement of Artificial Intelligence (**AAAI**), 2021 [PDF]

[10] *Blurry Video Compression: A Trade-off between Visual Enhancement and Data Compression*
Dawit Mureja Argaw, Junsik Kim, In So Kweon
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2024 [PDF]

[11] *Restoration of Video Frames from a Single Blurred Image with Motion Understanding*
Dawit Mureja Argaw, Junsik Kim, Francois Rameau, Chaoning Zhang, In So Kweon
IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (**CVPRW**), 2021, **Oral Presentation** [PDF]

[12] *Empirical Study on Using Adapters for Debiased Visual Question Answering*
Jae Won Cho, **Dawit Mureja Argaw**, Yeongtaek Oh, Dong-Jin Kim, In So Kweon
Computer Vision and Image Understanding (**CVIU**), 2023 [PDF]

[13] *LEMMS: Label Estimation of Multi-feature Movie Segments*
Bartolomeo Vacchetti, **Dawit Mureja Argaw**, Tania Cequtelli
International Conference on Computer Vision Workshops (**ICCVW**), 2023 [PDF]

[14] *ResNet or DenseNet: Introducing Shortcuts to ResNet*
Chaoning Zhang*, Philipp Benz*, **Dawit Mureja Argaw**, Seokju Lee, Junsik Kim, Francois Rameau, Jean Charles Bazin, In So Kweon
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2021 [PDF]

[15] *DeePTZ: Deep Self-Calibration for PTZ Cameras*
Chaoning Zhang, Francois Rameau, Junsik Kim, **Dawit Mureja Argaw**, Jean Charles Bazin, In So Kweon
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2020 [PDF]

[16] *Revisiting Residual Networks with Nonlinear Shortcuts*
Chaoning Zhang, Francois Rameau, Seokju Lee, Junsik Kim, Philipp Benz, **Dawit Mureja Argaw**, Jean Charles Bazin, In So Kweon
British Machine Vision Conference (**BMVC**), 2019, **Spotlight Presentation** [PDF]

[17] *Automatic Spine Segmentation from CT Images Using Convolutional Neural Network via Redundant Generation of Class Labels*
Dawit Mureja Argaw*, Malinda Vania*, Deukhee Lee (* equal contribution)
Journal of Computational Design and Engineering (**JCDE**), Vol 6, Issue 2, 2019 [PDF]

Honors & Awards

Fellowships & Research Awards

- **2025** Jang Young Sil Postdoctoral Fellowship – *KAIST*
- **2022** Best Poster Award – *"What is Motion For?" (WiMF) Workshop @ ECCV 2022*
- **2021** Finalist – *Qualcomm Innovation Fellowship Korea*

Reviewer Recognitions

- **2023** Top Reviewer Award – *NeurIPS*
- **2023** Outstanding Reviewer Award – *ICCV*
- **2023** Outstanding Reviewer Award – *CVEU Workshop @ ICCV*
- **2022** Outstanding Reviewer Award – *ECCV*

Academic Honors Scholarships

- **2018** Magna Cum Laude – *KAIST, Electrical Engineering Department*
- **2017** Excellent Research Award – *KAIST Undergraduate Research Program (URP)*
- **2015** Dean's List – *KAIST School of Freshman*
- **2014–2024** Full Scholarship (B.S. and Integrated M.S./Ph.D. Program) – *KAIST*

Other Distinctions

- **2024** Top Weights & Biases User (>800K hours tracked) – *Weights & Biases*
- **2022** CVPR Travel Grant – *CVPR*
- **2022** ECCV Travel Grant – *ECCV*

Academic Services

Journal Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

Conference Reviewer:

- **Computer Vision:** CVPR (2022–2025), ICCV (2021, 2023, 2025), ECCV (2022, 2024), BMVC (2022), WACV (2024)
- **Machine Learning:** ICML (2024–2025), ICLR (2024–2025), NeurIPS (2023–2025)
- **Robotics:** ICRA (2024)

Student Volunteer:

- ICLR (2020), ICML (2020), NeurIPS (2020)