Kashu Yamazaki

✉ kyamazak@andrew.cmu.edu
⌂ kashu7100.github.io
☚ Scholar ID: TF2LRvMAAAAJ

⁕ Education ⁕

M.S., Computer Science and Computer Engineering, **University of Arkansas**, Fayetteville, AR   Aug 2023
Thesis: Towards Multi-Modal Explainable Video Understanding   Advisor: Dr. Le, Ngan

B.S., Mechanical Engineering, *Summa Cum Laude*, **University of Arkansas**, Fayetteville, AR   Dec 2020
Thesis: Towards Sensorimotor Coupling of a Spiking Neural Network
and Deep Reinforcement Learning for Robotics Application   Advisor: Dr. Zhou, Wenchao
- Minor in Computer Science
- Major GPA: 4.0/4, Minor GPA: 4.0/4, Cumulative GPA: 3.952/4

⁕ Research Experience ⁕

CMU LTI, Visiting Researcher, Pittsburgh, PA   Nov 2023 - Present
Advised by Dr. Ramakrishnan, Bhiksha Raj
- Vision-language: Video captioning [6], Queryable mapping

UA AICV Lab, **Research Associate**, Fayetteville, AR   Sep 2023 - Present
PI: Dr. Le, Ngan
- Vision-Language: Queryable mapping [2]

UA AICV Lab, **Research Assistant**, Fayetteville, AR   Jan 2020 - Aug 2023
Advised by Dr. Le, Ngan
- Vision-Language: Explainable video representation [6] [8] [10]
- Video understanding: TAPG [8] [11] [13] [16], VPC [6] [10], and Anomaly Detection [4]
- Medical image segmentation: [14] [15] [19] [18]
- Aerial image segmentation: [3]

UA MSR Lab, **Undergraduate Research Assistant**, Fayetteville, AR   Dec 2018 - Dec 2019
Advised by Dr. Chen, Yue (now at Georgia Tech)
- Soft robot development for photodynamic therapy of pancreatic cancer [17] and ovarian cancer [20]
- Soft robotic gripper development for delicate object grasping

⁕ Industry Experience ⁕

Deloitte Consulting, *Consultant Intern (Remote)*,   Aug 2022
- Proposed a HR strategy for an insurance company with a special focus on digital transformation (DX).

TeirIV, Inc., *ML Engineering Intern (Remote)*,   Dec 2021
- Proposed an unsupervised model evaluation protocol for semantic segmentation models based on the ELBO of a categorical diffusion model for internal model evaluation.
- Implemented PointPillars with aleatoric uncertainty estimation for 3D object detection with point clouds.

⁕ Teaching Experience ⁕

NACME-Google, **Applied Machine Learning Intensive**, Fayetteville, AR   Su 2021
UA, **MEEG 2003** (Statics), Fayetteville, AR   Fa 2017 - Fa 2018

⁕ Professional Service ⁕

Conference Reviewer: CVPR (24), AAAI (23, 24), ICASSP (23, 24), ICML (22), ICIP (22)
Journal Reviewer: TNNLS (Since 23), ISA Transactions (Since 23)
Membership: *Tau Beta Pi*, the Engineering Honor Society (Since 2017)

⁕ Patents ⁕

[1] M. Bai, Y. Chen, Y. Liu, Y. Li, and **K. Yamazaki**, Soft Robotic Laparoscope for Minimally Invasive Intraperitoneal Photodynamic Therapy, USPTO, U.S. Provisional Patent Application No. 62/967825, 2020.

❋ Preprints ❋

[2] **K. Yamazaki**, T. Hanyu, K. Vo, T. Pham, M. Tran, G. Doretto, A. Nguyen, N. Le "Open-Fusion: Real-time Open-Vocabulary 3D Mapping and Queryable Scene Representation," Arxiv preprint (under review), 2023. ⬡

[3] **K. Yamazaki**, T. Hanyu, M. Tran, A. Garcia, A. Tran, R. McCann, H. Liao, C. Rainwater, M. Adkins, A. Molthan, J. Cothren, N. Le "AerialFormer: Multi-resolution Transformer for Aerial Image Segmentation," Arxiv preprint (under review), 2023.

❋ Peer-Reviewed Publications ❋

[4] H. Joo, K. Vo, **K. Yamazaki**, N. Le "CLIP-TSA: CLIP-Assisted Temporal Self-Attention for Weakly-Supervised Video Anomaly Detection," ICIP (**Oral**), 2023.

[5] K. Vo, T. Pham, **K. Yamazaki**, M. Tran, N. Le "DNA: Deformable Neural Articulations Network for Template-Free Dynamic 3D Human Reconstruction From Monocular RGB-D Video," CVPRW, 2023.

[6] **K. Yamazaki**, K. Vo, S. Truong, B. Raj, N. Le "VLTinT: Visual-Linguistic Transformer-in-Transformer for Coherent Video Paragraph Captioning," AAAI (**Oral**), 2023. ⬡

[7] M. Tran, K. Vo, **K. Yamazaki**, A. Fernandes, M. Kidd, N. Le "AISFormer: Amodal Instance Segmentation with Transformer," BMVC, 2022. ⬡

[8] K. Vo, S. Truong*, **K. Yamazaki***, B. Raj, M. Tran, N. Le "AOE-Net: Entities Interactions Modeling with Adaptive Attention Mechanism for Temporal Action Proposals Generation," IJCV (**IF: 19.5**), 2022. ⬡

[9] **K. Yamazaki**, K. Vo, D. Bulsara, N. Le "Spiking Neural Networks and Their Applications: A Review," Brain Sciences (**Editor's Choice**), 2022.

[10] **K. Yamazaki**, S. Truong, K. Vo, M. Kidd, C. Rainwater, K. Luu, N. Le "VLCap: Vision-Language with Contrastive Learning for Coherent Video Paragraph Captioning," ICIP (**Oral**), 2022. ⬡

[11] K. Vo, H. Joo*, **K. Yamazaki***, S. Truong, K. Kitani,, M.-T. Tran, N. Le "AEI: Actors-Environment Interaction with Adaptive Attention for Temporal Action Proposals Generation," BMVC (**Oral-3.33%**), 2021. ⬡

[12] N. Le, V. Rathoureqcont, **K. Yamazaki**eqcont, K. Luu, and M. Savvides "Deep Reinforcement Learning in Computer Vision: A Comprehensive Survey," Artificial Intelligence Review (**IF: 11.6**), 2021.

[13] K. Vo, **K. Yamazaki**, S. Truong, M.-T. Tran, A. Sugimoto, and N. Le "ABN: Agent-Aware Boundary Networks for Temporal Action Proposal Generation," IEEE Access, 2021.

[14] N. Le, T. Bui, K. Vo-Ho, **K. Yamazaki**, K. Luu "Narrow Band Active Contour Attention Model for Medical Segmentation," Diagnostics, 2021.

[15] **K. Yamazaki**, N. Le, V. Rathour "Invertible Residual Network with Regularization for Effective Volumetric Segmentation," SPIE Medical Imaging, 2021.

[16] V. Vo-Ho, N. Le, **K. Yamazaki**, A. Sugimoto, and M. Tran "Agent-Environment Network for Temporal Action Proposal Generation," ICASSP, 2021

[17] Y. Li, Y. Liu, **K. Yamazaki**, M. Bai and Y. Chen, "Development of a Soft Robot-Based Photodynamic Therapy for Pancreatic Cancer," in IEEE Transactions on Mechatronics (**IF: 6.4**), 2021.

[18] N. Le, **K. Yamazaki**, K. Quach, D. Truong, and M. Savvides "A Multi-task Contextual Atrous Residual Network for Brain Tumor Detection & Segmentation," ICPR, 2020.

[19] N. Le, T. Le, **K. Yamazaki**, B. Toan, K. Luu "Offset Curves Loss for Imbalanced Problem in Medical Segmentation," ICPR, 2020.

[20] Y. Liu, **K. Yamazaki**, D. Zhang, Y. Li, M. Su, Q. Xie, Y. Chen, and M. Bai, "Minimally Invasive Intraperitoneal Photodynamic Therapy Using a New Soft Robot System," SPIE, 2020.

❋ Book Chapters ❋

[21] K. Vo, **K. Yamazaki**, H. Hoang, M. Tran, N. Le "Neural Architecture Search for Medical Image Applications". Meta-Learning with Medical Imaging and Health Informatics Applications, 2023.