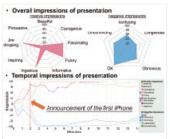| Name | Toshihiko Yamasaki | Location | Hongo Campus (Eng. Bld. #2) | Area | MM, CV, PR, ML, AI |

Computer Vision and Media Lab (CVM)

Our team are engaged in a wide spectrum of foundational and applied research across the fields of computer vision, multimedia, pattern recognition, machine learning and deep learning, natural language processing, and computer graphics. Furthermore, we actively collaborate with industry, universities, and research institutes, granting access to real-world large-scale data and aiming to contribute to our society.
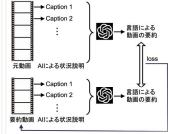
Attractiveness Computing

We are interested in analyzing why and how we get attracted to specific persons, contents, and services. We have been trying to predict, analyze, and even enhance such "attractiveness" or "sympathy" using multi-modal data. We are not doing research on application oriented topics, but trying to solve research problems behind them.
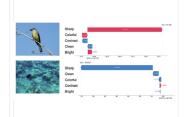- Analysis of presentation, interview, conversation, etc.
- Effect prediction and AI-assisted design for ads.
- Popularity analysis & enhancement in SNS and CGM.
- AI-assisted promotion for brands & influencers
- Matching and recommendation (dating, HR, EC, etc.).
- Applications of LLM/LMM.
- Consumer behavior analysis and marketing
- Image/video editing (design, Instagrammability, etc.)
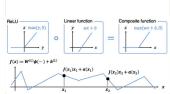- Fashion image analysis and recommendation

Machine Learning Frontiers

We have been working on fundamental machine learning problems. We are interested in developing novel research problems or fields rather than improving existing algorithms.
- Learning with few/imperfect training data.
- Self-supervised & semi-supervised learning, contrastive learning, continual learning, knowledge distilattion.
- Defence methods and theories for adversarial attacks.
- DeepFake detection and defence methods.
- Content generation using GANs & diffusion models.
- Explainable AI using vision and language.
- Efficient and effective learning using LLM/LMM.
- Bias and imbalance in datasets
- Optimization, green AI, and reliable AI
- Personalized image enhancement for AI models.
- Knowledge graph augmentation

Other Challenging Problems

We are also challenging new research topics aiming at widening our research activities.
- IoT sensor design.
- Nursery school and elderly care house sensing.
- Environment sensing using our own IoT devices.
- Disaster risk prediction.
- Quality assessment for crops.
- Effective and efficient education using AI.

Presentation Analysis

Video Summarization using LLM

Fashion Recommendation
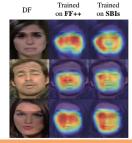
Explaining Attractiveness
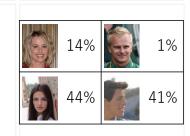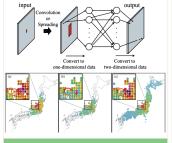
Modeling of DNNs

Explainable AI

Deep Fake Detection

Bias Detection using LMM

Disaster Risk Prediction

Property Sensing