Di YANG

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Current Status: PhD Candidate

EDUCATION

Inria - Sophia Antipolis, STARS Team — Sophia Antipolis, France
PhD candidate, Computer Vision and Artificial Intelligence — Nov 2019 - Dec 2023
Supervised by Dr. François Brémond (Inria) and Dr. Gianpiero Francesca (Toyota)
Topic: Video Understanding, Video Generation, Action Recognition

University of Lyon - Télécom Saint-Etienne — Saint-Etienne, France
M.Eng. & M.Sc., Computer Vision and Data Science — Sep 2016 - Sep 2019

Xidian University — Xi'an, China
B.Eng., Telecommunication Engineering — Aug 2013 - Jul 2017

PUBLICATIONS

Conference paper:

[1] Di Yang, Yaohui Wang, Antitza Dantcheva, Quan Kong, Lorenzo Garattoni, Gianpiero Francesca, Francois Bremond. LAC - Latent Action Composition for Skeleton-based Action Segmentation. *In Proc. **ICCV** 2023.*

[2] Di Yang, Yaohui Wang, Quan Kong, Antitza Dantcheva, Lorenzo Garattoni, Gianpiero Francesca, Francois Bremond. Self-supervised Spatio-temporal Representation Learning via Latent Time Navigation. *In Proc. **AAAI** 2023.*

[3] Yaohui Wang, **Di Yang**, Francois Bremond, Antitza Dantcheva. Latent Image Animator: Learning to Animate Image via Latent Space Navigation. *In Proc. **ICLR** 2022.*

[4] Di Yang*, Yaohui Wang*, Antitza Dantcheva, Lorenzo Garattoni, Gianpiero Francesca, Francois Bremond. UNIK: A Unified Framework for Real-world Skeleton-based Action Recognition. *In Proc. **BMVC** 2021 (**Oral**, acceptance rate **3%**).*

[5] Di Yang, Rui Dai, Yaohui Wang, Rupayan Mallick, Luca Minciullo, Gianpiero Francesca, Francois Bremond. Selective Spatio-Temporal Aggregation Based Pose Refinement System: Towards Understanding Human Activities in Real-World Videos. *In Proc. **WACV** 2021.*

[6] Di Yang, Yaohui Wang, Antitza Dantcheva, Lorenzo Garattoni, Gianpiero Francesca, Francois Bremond. Self-supervised Video Pose Representation Learning for Occlusion-robust Action Recognition. *In Proc. **FG** 2021 (**Oral**, accceptance rate **10%**).*

[7] Valeriya Strizhkova, Yaohui Wang, David Anghelone, **Di Yang**, Antitza Dantcheva, Francois Bremond. Emotion Editing in Head Reenactment Videos using Latent Space Manipulation. *In Proc. **FG** 2021.*

Journal:

[1] Di Yang, Yaohui Wang, Antitza Dantcheva, Lorenzo Garattoni, Gianpiero Francesca, Francois Bremond. ViA: View-invariant Skeleton Action Representation Learning via Self-supervised Motion Retargeting. *Submitted to **IJCV** 2023 (Under revision).*

[2] Srijan Das, Rui Dai, **Di Yang**, Francois Bremond. VPN++: Rethinking Video-Pose embeddings for understanding Activities of Daily Living. ***IEEE TPAMI** 2021.*

Patents:

[1] Method and System for Training An Encoder Model. *EP Patent (Applied in 2023). Application number: EP23305147.*

[2] Motion Representation Calculation Method and System, Training Method, Computer Program, Readable Medium and System. *EP Patent (Applied in 2023). Application number: EP22305979.*

[3] Computer-implemented Method for Pre-training A Model to Recognize A Graph-represented Pattern in An Input. *EP Patent (Applied in 2023). Application number: EP2130596.*

PROFESSIONAL EXPERIENCE

Toyota Motor Europe - AI Robotics Lab. Brussels, Belgium
Academic-Industrial Collaboration, Research Intern Nov 2019 - Present

Research in human pose estimation and activity recognition

- *Implement and improve SoTA approaches for Toyota's human pose estimation system.*
- *Propose novel deep learning algorithms for Toyota Smart Home action recognition system.*
- *Apply the proposed approaches for Toyota Smart Factory activity analysis system.*

Woven by Toyota - Woven City Tokyo, Japan (Remote)
Academic-Industrial Collaboration Feb 2022 - Present

Research in video representation learning

- *Construct a unified framework for daily living action classification, action detection, self-supervised action representation learning, video generation tasks.*

EKINNOX Sophia Antipolis, France
Research & Development Intern Mar 2019 - Aug 2019

Medical software development using deep learning algorithms

- *Create a spatio-temporal walking model of a healthy person to be robust to occlusions in order to improve human pose estimation based on RGB-D camera.*

University of Lyon (Lab. - UMR CNRS 5516) Lyon, France
Research Intern Jun 2018 - Aug 2018

Images analysis for disease detection in the agricultural field

- *Detect the zones contaminated by mildew for the leaves using hyper-spectral images.*

ACADEMIC EXPERIENCE

Serve as reviewer -
CVPR 2023/2022, AAAI 2024/2023, CVIU 2023/2021, PRL 2021, WACV 2022 Jan 2021 - Present

Present a poster at TRACE - Toyota Research on Automated Cars in Europe 2023 Leuven, Belgium Sep 2023
Topic: Latent action composition for skeleton-based action segmentation

Attend Cambridge Ellis Unit Summer School Cambridge, UK
Topic: Probabilistic Machine Learning Jul 2023

Present a poster at TRACE - Toyota Research on Automated Cars in Europe 2022 Leuven, Belgium Sep 2022
Topic: View-invariant video representation learning for human action recognition

Attend OxML - Oxford Machine Learning Summer School Oxford, UK
Topic: Machine Learning x HEALTH Aug 2022

Give a talk at University of Lyon 2 - IMAGINE Team Lyon, France
Topic: Real-world skeleton-based human action recognition Jan 2022

Attend Multi-Modal Video Reasoning and Analyzing Competition (ICCV 2021) - Jul 2021
Propose a skeleton-based action recognition approach for UAV-Human (Ranked top 6).

SKILLS

- **Program Languages:** Python, C/C++, MATLAB, Java, JavaScript
- **Frameworks:** PyTorch, Keras, Scikit-learn, OpenCV, OpenGL, Qt, SpringBoot, React
- **Languages:** English: Fluent, French: Fluent, Chinese: Native