

# Yu-Wing TAI

Associate Professor

Dartmouth College, Hanover, NH, United States

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**Research Interests:** Computer Vision (Segmentation, 3D Reconstruction, Recognition, etc.), Deep Learning

## Education

**PhD, School of Computing, 22 June 2009**

National University of Singapore

Advisor: Dr. Michael Brown

**MPhil, Computer Science, 31 August 2005**

Hong Kong Uni. of Science and Technology

Advisor: Dr. Chi-Keung Tang

**BEng, Computer Science, 30 June 2003**

Hong Kong Uni. of Science and Technology

First Class Honors/Minor in Mathematics

## Work Experience/Internship

Nov 2023 – Now Associate Professor, Department of Computer Science, Dartmouth College, NH, United States

May 2020 – April 2023 Senior Research Director, Video Technology, Kuaishou Technology, China  
--Lead a research team for video enhancement, video editing, and video quality assessment.

April 2020 – Oct 2023 Adjunct Professor, CSE Department, HKUST, Hong Kong, China

Jan 2017 – April 2020 Research Director (T14), Youtu Lab, Tencent, Shenzhen, China  
--Responsible for Image/Video Understanding in “Top Stories”&“Channels” in WeChat, 2017-2020  
--Lead the Visual Perception team of Autonomous Driving team in Tencent 2018-2019  
--Lead the team to develop CV industrial application solution in Tencent Cloud, 2018-2020

April 2017 – April 2020 Adjunct Associate Professor, CSE Department, HKUST, Hong Kong, China  
--Lead 2M CNY (Around \$300K USD) donation from Tencent to HKUST  
--Hire more than 30 student interns in Tencent

Sept 2015 – Dec 2016 Principal Research Scientist, SenseTime Group Limited, Hong Kong, China  
--Lead a team to develop a dual camera solution for mobile platform

Sept 2014 – Aug 2015 Associate Professor, Department of Electrical Engineering, KAIST

Mar 2013 – Aug 2014 Assistant Professor, Department of Electrical Engineering, KAIST

Jul 2009 – Feb 2013 Assistant Professor, Department of Computer Science, KAIST

Jul 2010 – Aug 2010 Visiting Researcher, MSRA

Jan 2009 – Jun 2009 Research Fellow, NUS

Sept 2007 – Jun 2008 Internship in Microsoft Research Asia (MSRA), Beijing

## Awards (Selected)

Kuaishou Technology Lhotse Award, Kuaishou Technology, Nov 2022 (For the achievement of 10 million DAU of KuaiYing APP)

Kuaishou Technology Lhotse Award, Kuaishou Technology, Nov 2021 (For the development of HDR technology)

Annual Technology Breakthrough Award, Tencent, 2017 (Gold) / 2019 (Bronze)

Tencent Corporate Vice President Award, 2018/2019

Top 50 outstanding research projects supported by National Research Foundation (NRF), 2012 (Note: NRF is Korean NSF)

KAIST 40<sup>th</sup> Anniversary Academic Award for Excellent Professors, 2011

Outstanding Reviewer Award, CVPR 2009

Microsoft Fellowship 2007

## Academic Professional Activities (Selected)

Conference Organizing Committee:

Corporate Relationship Chair, IEEE/CVF Conference on Computer Vision and Pattern Recognition (*CVPR*), 2018

Associate Editor:

IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), Dec 2021 - now

Area Chair / Senior Program Committee:

IEEE/CVF Conference on Computer Vision and Pattern Recognition (*CVPR*), 2021, 2023

IEEE/CVF International Conference on Computer Vision (*ICCV*) 2011, 2015, 2017, 2019

European Conference on Computer Vision (*ECCV*) 2020, 2024

Thirty-seventh Conference on Neural Information Processing Systems (*NeurIPS*) 2023

International Joint Conferences on Artificial Intelligence (*IJCAI*) 2019, 2020, 2021, 2022, 2024

AAAI Conference on Artificial Intelligence (*AAAI*) 2021, 2022, 2024

International Conference on 3D Vision (*3DV*) 2015, 2016, 2017, 2020

Program Committee / Reviewer (Selected):

CVPR/ICCV/ECCV/ICML/NeurIPS/BMVC/ACCV/WACV/Siggraph/Siggraph Asia/Eurographics

Journal Reviewer (Selected):  
TPAMI/IJCV/TIP/TOG/TVCG  
IEEE Senior Member; ACM Member;

### **Funded Grants (~\$1M USD in total)**

*Previous Grants (in KAIST, S. Korea, 1 USD ~ 1100 KRW as of 2015):*

Super-resolution and Depth-of-field enhancement for light-field images (Co-PI)

- Samsung Industrial Project
- 72,640,000 won, 08.2014 ~ 07.2015
- 72,640,000 won, 08.2013 ~ 07.2014
- 72,640,000 won, 08.2012 ~ 07.2013

Development of a deep learning algorithm for salient region detections (Project PI)

- KAIST High Risk High Return Project (HRHRP)
- 50,000,000 won, 07.2015 ~ 12.2015

Shading-based Shape Refinement for Multi-view reconstruction from RGB-D images (Project PI)

- Microsoft & MKE (NIPA) Creative IT/SW Research project
- 70,000,000 won, 11.2013 ~ 08.2014

Sensor fusion imaging for the development of future robotic cameras (Project PI)

- Basic Research Program, NRF, Korea (*NRF in Korea is equivalent to NSF in US*)
- 48,350,000 won, 05.2013 ~ 04.2014
- 47,740,000 won, 05.2012 ~ 04.2013
- 48,740,000 won, 05.2011 ~ 04.2012

Egocentric video summarization based on localization, tracking, recognition and video frame quality assessment (Project PI)

- KUSTAR-KAIST Seed Money Project
- 70,000,000 won, 05.2013 ~ 12.2013

From Internet to Real-World Reconstruction and Applications (Project PI)

- KAIST Microsoft Collaboration Center (KMCC) Research Project
- 12,396,385 won, 06.2012 ~ 06.2013

Development of 3D imaging and processing algorithms for the next generation cameras (Project PI)

- KAIST High Risk High Return Project (HRHRP)
- 50,000,000 won, 01.2013 ~ 12.2013

Development of algorithms for video enhancement and editing using inputs from Xbox Kinect (Project PI)

- Microsoft & MKE (NIPA) Creative IT/SW Research project
- 60,000,000 won, 10.2011~6.2012

Development of total solution which converts 2D video into high quality 3D video (Co-PI)

- KOCCA
- 72,310,000 won, 07.2010 ~ 03.2011
- 50,594,981 won, 04.2011 ~ 03.2012
- 28,964,000 won, 04.2012 ~ 03.2013

Automatic/Semi-automatic algorithms for satellite image cloud cover assessment

- Korea Aerospace Research Institute (KARI)
- 19,000,000 won, 11.2010 ~ 01.2011

Recovery of motion blurred images under projective motion path (Project PI)

- KAIST seed grant
- 200,000,000 won, 06.2009~12.2012

### **Company Donations to HKUST (~450K USD in total)**

Led a donation of 2M CNY (equivalent to approximately \$300K USD) from Tencent to HKUST

Led a donation of 1M CNY (equivalent to approximately \$150K USD) from Kuaishou Technology to HKUST

### **Teaching and Student Supervision**

Please refer to the teaching statement for details

## **Publications**

Google Scholar Profile: <http://scholar.google.com/citations?user=nFhLmFkAAAAJ&hl=en>

Citations: > 18,000; H-index: 69

### Selected Recent Publications:

1. Benran Hu, Junkai Huang, Yichen Liu, **Yu-Wing Tai**, Chi-Keung Tang, *NeRF-RPN: A general framework for object detection in NeRFs*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023  
<https://arxiv.org/abs/2211.11646>
2. Qi Fan, Wei Zhuo, Chi-Keung Tang, **Yu-Wing Tai**, *Few-Shot Object Detection with Attention-RPN and Multi-Relation Detector*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.  
<https://arxiv.org/abs/1908.01998>
3. Haoshu Fang, Shuqin Xie, **Yu-Wing Tai**, Cewu Lu, *RMPE: Regional multi-person pose estimation*, IEEE International Conference on Computer Vision (**ICCV**) 2017.  
<https://arxiv.org/abs/1612.00137>

*Journals (20 IEEE TPAMI, 2 ACM ToG, 5 IJCV, 9 IEEE TIP etc.)*

1. Yanan Sun, Chi-Keung Tang, **Yu-Wing Tai**, *Semantic Image Matting: General and Specific Semantics*, International Journal of Computer Vision (**IJCV**), 131 (10), 2023.
2. Peng Zheng, Huazhu Fu, Deng-Ping Fan, Qi Fan, Jie Qin, **Yu-Wing Tai**, Chi-Keung Tang, Luc Van Gool, *GCoNet+: A Stronger Group Collaborative Co-Salient Object Detector*, IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), vol 45, no. 9, pages 10929 - 10946, 2023.
3. Lei Ke, **Yu-Wing Tai**, Chi-Keung Tang, *Occlusion-Aware Instance Segmentation Via BiLayer Network Architectures*, IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), vol 45, no. 8, pages 10197 - 10211, 2023.
4. Wenjie Pei, Xin Feng, Canmiao Fu, Qiong Cao, Guangming Lu, **Yu-Wing Tai**, *Learning Sequence Representations by Non-local Recurrent Neural Memory*, International Journal of Computer Vision (**IJCV**), 130 (8), 2532–2552, 2022.
5. Jinshan Pan, Deqing Sun, Jiawei Zhang, Jinhui Tang, Jian Yang, **Yu-Wing Tai**, Ming-Hsuan Yang, *Dual Convolutional Neural Networks for Low-Level Vision*, International Journal of Computer Vision (**IJCV**), 130 (6), 1440-1458, 2022.
6. Xian Wu, Chen Li, Shi-Min Hu, **Yu-Wing Tai**, *Hierarchical Generation of Human Pose with Part-Based Layer Representation*, IEEE Trans. on Image Processing (**TIP**), vol. 30, pages 7856-7855, 2021
7. Yang You, Yujing Lou, Ruoxi Shi, Qi Liu, **Yu-Wing Tai**, Lizhuang Ma, Weiming Wang, Cewu Lu, *Prin/sprin: On extracting point-wise rotation invariant features*, IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), vol 44, no. 2, pages 9489-9502, 2021.
8. Yongjie Zhu, Chen Li, Li Si, Boxin Shi, **Yu-Wing Tai**, *Hybrid Face Reflectance, Illumination, and Shape from a Single Image*, IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), vol 44, no. 9, pages 5002-5015, 2021.
9. Yunan Liu, Shanshan Zhang, Jie Xu, Jian Yang, **Yu-Wing Tai**, *An Accurate and Lightweight Method for Human Body Image Super-Resolution*, IEEE Trans. on Image Processing (**TIP**), vol. 30, pages 2888-2897, 2021.
10. Weinong Wang, Wenjie Pei, Qiong Cao, Shu Liu, Guangming Lu, **Yu-Wing Tai**, *Push for Center Learning via Orthogonalization and Subspace Masking for Person Re-Identification*, IEEE Trans. on Image Processing (**TIP**), vol. 30, pages 907-920, 2020.
11. Jinshan Pan, Jiangxin Dong, Yang Liu, Jiawei Zhang, Jimmy Ren, Jinhui Tang, **Yu-Wing Tai**, Ming-Hsuan Yang, *Physics-Based Generative Adversarial Models for Image Restoration and Beyond*, IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), vol 43, no. 7, pages 2449-2462, 2020.

12. Donghyeon Cho, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, Semi-calibrated photometric stereo, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 42, no. 1, pages 232-245, 2018.
13. Donghyeon Cho, **Yu-Wing Tai**, In So Kweon, Deep convolutional neural network for natural image matting using initial alpha mattes, IEEE Trans. on Image Processing (*TIP*), vol. 28, no. 3, pages 1054-1067, 2018.
14. Hae-Gon Jeon, Jaesik Park, Gyeongmin Choe, Jinsun Park, Yunsu Bok, **Yu-Wing Tai**, In So Kweon, *Depth from a Light Field Image with Learning-based Matching Costs*, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 41, no. 2, pages 297-310, 2018.
15. Tae-Hyun Oh, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Fast Randomized Singular Value Thresholding for Low-rank Optimization*, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 40, no. 2, pages 376-391, 2018.
16. Gayoung Lee, **Yu-Wing Tai**, Junmo Kim, ELD-Net: An efficient deep learning architecture for accurate saliency detection, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 40, no. 7, pages 1599-1610, 2018.
17. Seong-heum Kim, **Yu-Wing Tai**, Joon-Young Lee, Jaesik Park, In So Kweon, Category-Specific Salient View Selection via Deep Convolutional Neural Networks, Computer Graphics Forum (*CGF*), 36(8), 313-328, 2017.
18. Donghyeon Cho, Sunyeong Kim, **Yu-Wing Tai**, In So Kweon, *Automatic Trimap Generation and Consistent Matting for Light-Field Images*, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 39, no. 8, pages 1504-1517, 2017.
19. Jaesik Park, Sudipta N. Sinha, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Robust Multiview Photometric Stereo using Planar Mesh Parameterization*, IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 39, no. 8, pages 1591-1604, 2017.
20. Gyeongmin Choe, Jaesik Park, **Yu-Wing Tai**, In So Kweon, *Refining Geometry from Depth Sensors using IR Shading Images*, International Journal of Computer Vision (*IJCV*), 122 (1), 1-16, 2017.
21. Minhaeng Lee, **Yu-Wing Tai**, *Robust All-in-focus Super-Resolution for Focal Stack Photography*, IEEE Trans. on Image Processing (*TIP*), vol 25, no. 4, pages 1887-1897, 2016.
22. Seong-Heum Kim, **Yu-Wing Tai**, Jaesik Park, In So Kweon, *Multi-view Object Extraction with Fractional Boundaries*, IEEE Trans. on Image Processing (*TIP*), vol. 25, no. 8, pages 3639-3654, 2016.
23. Jiwhan Kim, Dongyoon Han, **Yu-Wing Tai**, Junmo Kim, *Salient Region Detection via High-Dimensional Color Transform and Local Spatial Support*, IEEE Trans. on Image Processing (*TIP*), vol. 25, no. 1, pages 9-23, 2016.
24. Tae-Hyun Oh, **Yu-Wing Tai**, Jean-Chales Bazin, Hyeongwoo Kim, In So Kweon, *Partial Sum Minimization of Singular Values in Robust PCA: Algorithm and Applications*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 38, no. 4, pages 744-758, 2016.
25. Jae-Hyuck Park, **Yu-Wing Tai**, *A simulation-based method for vehicle motion prediction*, Computer Vision and Image Understanding (*CVIU*), vol 136, no. 7, pages 79-91, 2015.
26. Taehyun Oh, Joon-Young Lee, **Yu-Wing Tai**, In So Kweon, *Robust High Dynamic Range Imaging by Rank Minimization*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol 37, no. 6, pages 1219-1232, 2015.
27. Jaesik Park, Hyeongwoo Kim, **Yu-Wing Tai**, Michael S. Brown, In So Kweon, *High Quality Depth Map Upsampling and Completion for RGB-D cameras*, IEEE Trans. on Image Processing (*TIP*), vol. 23, no. 12, pages 5559-5572, 2014.
28. Williem, **Yu-Wing Tai**, In Kyu Park, *Accurate and real-time depth video acquisition using Kinect-stereo camera fusion*, Optical Engineering, vol. 53, no. 4, 043110, 2014.

29. Sou-Young Jin, Ho Jin Choi, **Yu-Wing Tai**, *A Randomized Algorithm for Natural Object Colorization*, Computer Graphics Forum, (Special Issue on *Eurographics*), 33(2), 2014.
30. Naejin Kong, **Yu-Wing Tai**, Joseph Sung Yong Shin, *A Physically-based Approach to Reflection Separation: from Physical Modeling to Constrained Optimization*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 36, no. 2, pages 209-221, 2014.
31. **Yu-Wing Tai**, Xiaogang Chen, Sunyeong Kim, Seon Joo Kim, Feng Li, Jie Yang, Jingyi Yu, Yasuyuki Matsushita, Michael S. Brown, *Nonlinear Camera Response Functions and Image Deblurring: Theoretical Analysis and Practice*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 35, no. 10, pages 2498-2512, 2013.
32. Zheng Lu, **Yu-Wing Tai**, Fanbo Deng, Moshe Ben-Ezra, Michael S. Brown, *A 3D Imaging Framework Based on High-Resolution Photometric-Stereo and Low-Resolution Depth*, International Journal of Computer Vision (*IJCV*), vol. 102, no. 1-3, pages 18-32, 2013.
33. Sunghyun Cho, Hojin Cho, **Yu-Wing Tai**, Seungyong Lee, Registration Based Non-Uniform Motion Deblurring, Computer Graphics Forum (Special Issue on *Pacific Graphics*), 31(7), 2183-2192, 2012.
34. Kunho Kim, Mohammad K. Hasan, Jae-Pil Heo, **Yu-Wing Tai**, Sung-Eui Yoon, Probabilistic Cost Model for Nearest Neighbor Search in Image Retrieval, Computer Vision and Image Understanding (*CVIU*), vol. 116, no. 9, pages 991-998, 2012.
35. Yong Sang Chia, Shaojie Zhuo, Raj Kumar Gupta, **Yu-Wing Tai**, Siu-Yeung Cho, Ping Tan, Stephen Lin, *Semantic Colorization with Internet Images*, ACM Transaction on Graphics (*TOG/SIGGRAPH Asia*), 30(6):156, 2011.
36. Naejin Kong, **Yu-Wing Tai**, Sung Yong Shin, *High-quality Reflection Separation using Polarized Images*, IEEE Trans. on Image Processing (*TIP*), vol. 20, no. 12, pages 3393 – 3405, 2011.
37. Haiting Lin, **Yu-Wing Tai**, Michael S. Brown, *Motion Regularization for Matting motion blurred Objects*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 33, no. 11, pages 2329-2336, 2011.
38. **Yu-Wing Tai**, Ping Tan, Michael S. Brown, *Richardson-Lucy Deblurring for Scenes under Projective Motion Path*, IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 33, no. 8, pages 1603-1618, 2011.
39. **Yu-Wing Tai**, Hao Du, Michael S. Brown, Stephen Lin, *Correction of Spatially Varying Image and Video Blur using a Hybrid Camera*. IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 32, no.6, pages 1012-1028, 2010.
40. **Yu-Wing Tai**, Huixuan Tang, Michael S. Brown, Stephen Lin, *Detail Recovery from Single-image Defocus Blur*, IJSP Trans. on Computer Vision and Applications, March 2009 (invited submission)
41. **Yu-Wing Tai**, Michael S. Brown, Chi-Keung Tang, Heung-Yeung Shum, *Texture Amendment: Reducing Texture Distortion in Constrained Parameterization*. ACM Trans. on Graphics (*TOG/SIGGRAPH Asia*), 27(5): 136, 2008.
42. **Yu-Wing Tai**, Jiaya Jia, Chi-Keung Tang, *Soft Color Segmentation and its Applications*. IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 29, no. 9, pages 1520-1537, 2007.
43. Jiaya Jia, **Yu-Wing Tai**, Tai-Pang Wu, Chi-Keung Tang, *Video Repairing under Variable Illumination Using Cyclic Motions*. IEEE Trans. on Pattern Analysis and Machine Intelligence (*TPAMI*), vol. 28, no. 5, pages 832-839, 2006.

*Conferences (50 CVPR, 18 ICCV, 21 ECCV, 6 NeurIPS, etc.)*

1. Lei Ke, Mingqiao Ye, Martin Danelljan, Yifan liu, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Segment Anything in High Quality*, Thirty-seventh Conference on Neural Information Processing Systems (*NeurIPS*), 2023.

2. Hao Zhang, Tianyuan Dai, Yanbo Xu, **Yu-Wing Tai**, Chi-Keung Tang, *FaceDNeRF: Semantics-Driven Face Reconstruction, Prompt Editing and Relighting with Diffusion Models*, Thirty-seventh Conference on Neural Information Processing Systems (*NeurIPS*), 2023.
3. Haotong Qin, Lei Ke, Xudong Ma, Martin Danelljan, **Yu-Wing Tai**, Chi-Keung Tang, Xianglong Liu, Fisher Yu, *BiMatting: Efficient Video Matting via Binarization*, Thirty-seventh Conference on Neural Information Processing Systems (*NeurIPS*), 2023.
4. Yichen Liu, Benran Hu, Junkai Huang, **Yu-Wing Tai**, Chi-Keung Tang, *Instance Neural Radiance Field*, IEEE International Conference on Computer Vision (*ICCV*), 2023.
5. Yue Xu, Yong-Lu Li, Zhemin Huang, Michael Xu Liu, Cewu Lu, **Yu-Wing Tai**, Chi-Keung Tang, *EgoPCA: A New Framework for Egocentric Hand-Object Interaction Understanding*, IEEE International Conference on Computer Vision (*ICCV*), 2023.
6. Mingqiao Ye, Lei Ke, Siyuan Li, **Yu-Wing Tai**, Chi-Keung Tang, Martin Danelljan, Fisher Yu, *Cascade-DETR: Delving into High-Quality Universal Object*, IEEE International Conference on Computer Vision (*ICCV*), 2023.
7. Songlin Tang, Wenjie Pei, Xin Tao, Tanghui Jia, Guangming Lu, **Yu-Wing Tai**, *Scene-Generalizable Interactive Segmentation of Radiance Fields*, ACM International Conference on Multimedia (*ACMMM*), 2023.
8. Huimin Zeng, Weinong Wang, Xin Tao, Zhiwei Xiong, **Yu-Wing Tai**, Wenjie Pei, *Feature Decoupling-Recycling Network for Fast Interactive Segmentation*, ACM International Conference on Multimedia (*ACMMM*), 2023.
9. Benran Hu, Junkai Huang, Yichen Liu, **Yu-Wing Tai**, Chi-Keung Tang, *NeRF-RPN: A general framework for object detection in NeRFs*, IEEE Conference on Computer Vision and Pattern Recognition (*CVPR*), 2023.
10. Lei Ke, Martin Danelljan, Henghui Ding, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Mask-Free Video Instance Segmentation*, IEEE Conference on Computer Vision and Pattern Recognition (*CVPR*), 2023.
11. Yanan SUN, Chi-Keung Tang, **Yu-Wing Tai**, *Ultrahigh Resolution Image/Video Matting with Spatio-Temporal Sparsity*, IEEE Conference on Computer Vision and Pattern Recognition (*CVPR*), 2023.
12. Takashi Isobe, Yingwei Wang, Xu Jia, Xin Tao, Huchuan Lu, **Yu-Wing Tai**, *Compression-Aware Video Super-Resolution*, IEEE Conference on Computer Vision and Pattern Recognition (*CVPR*), 2023.
13. Qi Fan, Mattia Segu, **Yu-Wing Tai**, Fisher Yu, Chi-Keung Tang, Bernt Schiele, Dengxin Dai, *Towards Robust Object Detection Invariant to Real-World Domain Shifts*, International Conference on Learning Representations (*ICLR*), 2023.
14. Xinhang Liu, Jiaben Chen, Huai Yu, **Yu-Wing Tai**, Chi-Keung Tang, *Unsupervised Multi-View Object Segmentation Using Radiance Field Propagation*, Thirty-sixth Conference on Neural Information Processing Systems (*NeurIPS*), 2022.
15. Lei Ke, Henghui Ding, Martin Danelljan, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Video Mask Transfuser for High-Quality Video Instance Segmentation*, European Conference on Computer Vision (*ECCV*), 2022.
16. Qi Fan, Chi-Keung Tang, **Yu-Wing Tai**, *Few-Shot Object Detection with Model Calibration*, European Conference on Computer Vision (*ECCV*), 2022.
17. Qi Fan, Wenjie Pei, **Yu-Wing Tai**, Chi-Keung Tang, *Self-support few-shot semantic segmentation*, European Conference on Computer Vision (*ECCV*), 2022.
18. Qi Fan, Chi-Keung Tang, **Yu-Wing Tai**, *Few-shot video object detection*, European Conference on Computer Vision (*ECCV*), 2022.
19. Gang He, Kepeng Xu, Li Xu, Chang Wu, Ming Sun, Xing Wen, **Yu-Wing Tai**, *SDRTV-to-HDRTV via hierarchical dynamic context feature mapping*, ACM International Conference on Multimedia (*ACMMM*), 2022.

20. Chen Wang, Xian Wu, Yuan-Chen Guo, Song-Hai Zhang, **Yu-Wing Tai**, Shi-Min Hu, *NeRF-SR: High Quality Neural Radiance Fields using Super-sampling*, ACM International Conference on Multimedia (**ACMMM**), 2022.
21. Jiayin Cai, Changlin Li, Xin Tao, **Yu-Wing Tai**, *Image Multi-Inpainting via Progressive Generative Adversarial Networks*, ACM International Conference on Multimedia (**ACMMM**), 2022.
22. Yanan Sun, Chi-Keung Tang, **Yu-Wing Tai**, *Human Instance Matting via Mutual Guidance and Multi-Instance Refinement*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.
23. Xinpeng Liu, Yong-Lu Li, Xiaoqian Wu, **Yu-Wing Tai**, Cewu Lu, Chi-Keung Tang, *Interactiveness Field in Human-Object Interactions*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.
24. Takashi Isobe, Xu Jia, Xin Tao, Changlin Li, Ruihuang Li, Yongjie Shi, Jing Mu, Huchuan Lu, **Yu-Wing Tai**, *Look Back and Forth: Video Super-Resolution with Explicit Temporal Difference Modeling*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.
25. Lei Ke, Martin Danelljan, Xia Li, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Mask Transfomer for High-Quality Instance Segmentation*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.
26. Li Xu, Gang He, Jinjia Zhou, Jie Lei, Weiyang Xie, Yunsong Li, **Yu-Wing Tai**, *Transcoded Video Restoration by Temporal Spatial Auxiliary Network*, The AAAI Conference on Artificial Intelligence (**AAAI**), 2022.
27. Lei Ke, Xia Li, Martin Danelljan, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Prototypical Cross-Attention Networks for Multiple Object Tracking and Segmentation*, Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS**), 2021.
28. Ho Kei Cheng, **Yu-Wing Tai**, Chi-Keung Tang, *Rethinking Space-Time Networks with Improved Memory Coverage for Efficient Video Object Segmentation*, Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS**), 2021.
29. Lei Ke, **Yu-Wing Tai**, Chi-Keung Tang, *Occlusion-Aware Video Object Inpainting*, IEEE International Conference on Computer Vision (**ICCV**), 2021.
30. Jihoon Chung, Cheng-hsin Wu, Hsuan-ru Yang, **Yu-Wing Tai**, Chi-Keung Tang, *HAA500: Human-Centric Atomic Action Dataset with Curated Videos*, IEEE International Conference on Computer Vision (**ICCV**), 2021.
31. Ho Kei Cheng, **Yu-Wing Tai**, Chi-Keung Tang, *Modular Interactive Video Object Segmentation: Interaction-to-Mask, Propagation and Difference-Aware Fusion*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
32. Yanan Sun, Chi-Keung Tang, **Yu-Wing Tai**, *Semantic Image Matting*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
33. Yanan Sun, Guanzhi Wang, Qiao Gu, Chi-Keung Tang, **Yu-Wing Tai**, *Deep Video Matting via Spatio-Temporal Alignment and Aggregation*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
34. Lei Ke, **Yu-Wing Tai**, Chi-Keung Tang, *Deep Occlusion-Aware Instance Segmentation with Overlapping BiLayers*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
35. Qi Fan, Deng-Ping Fan, Huazhu Fu, Chi-Keung Tang, Ling Shao, **Yu-Wing Tai**, *Group Collaborative Learning for Co-Salient Object Detection*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
36. Lei Ke, Shichao Li, Yanan SUN, **Yu-Wing Tai**, Chi-Keung Tang, *GSNet: Joint Vehicle Pose and Shape Reconstruction with Geometrical and Scene-aware Supervision*, European Conference on Computer Vision (**ECCV**), 2020.
37. Ran Chen, Yong Liu, Mengdan Zhang, Shu Liu, Bei Yu, **Yu-Wing Tai**, *Dive Deeper into Box for Object Detection*, European Conference on Computer Vision (**ECCV**), 2020.



38. Ka Leong CHENG, Zhaoyang Yang, Qifeng Chen, **Yu-Wing Tai**, *Fully Convolutional Networks for Continuous Sign Language Recognition*, European Conference on Computer Vision (**ECCV**), 2020.
39. Hongwei Yi, Zizhuang Wei, Mingyu Ding, Runze Zhang, Yisong Chen, Guoping Wang, **Yu-Wing Tai**, *Pyramid Multi-view Stereo Net with Self-adaptive View Aggregation*, European Conference on Computer Vision (**ECCV**), 2020.
40. Hongwei Yi, Zizhuang Wei, Jianfeng Yan, Mingyu Ding, Runze Zhang, Yisong Chen, Guoping Wang, **Yu-Wing Tai**, *Dense Hybrid Recurrent Multi-view Stereo Net with Dynamic Consistency Checking*, European Conference on Computer Vision (**ECCV**), 2020.
41. Qi Fan, Lei Ke, Wenjie Pei, Chi-Keung Tang, **Yu-Wing Tai**, *Commonality-Parsing Network across Shape and Appearance for Partially Supervised Instance Segmentation*, European Conference on Computer Vision (**ECCV**), 2020.
42. Xuhua Huang, Jiarui Xu, **Yu-Wing Tai**, Chi-Keung Tang, *Fast Video Object Segmentation with Temporal Aggregation Network and Dynamic Template Matching*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
43. Ho Kei Cheng, Jihoon Chung, **Yu-Wing Tai**, Chi-Keung Tang, *CascadePSP: Toward Class-Agnostic and Very High-Resolution Segmentation via Global and Local Refinement*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
44. Xiang Li, Tianhan Wei, Yau Pun Chen, Chi-Keung Tang, **Yu-Wing Tai**, *FSS-1000: A 1000-Class Dataset for Few-Shot Segmentation*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
45. Shichao Li, Lei Ke, Kevin Pratama, **Yu-Wing Tai**, Chi-Keung Tang, Kwang-Ting Cheng, *Cascaded Deep Monocular 3D Human Pose Estimation with Evolutionary Training Data*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
46. Qi Fan, Wei Zhuo, Chi-Keung Tang, **Yu-Wing Tai**, *Few-Shot Object Detection with Attention-RPN and Multi-Relation Detector*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
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