

Yu-Wing TAI

Senior Research Director,
Video Technology Group, Kuaishou Technology, China
Email: yuwing@gmail.com

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

Education

PhD, School of Computing, 22 June 2009

Advisor: Dr. Michael Brown

National University of Singapore

MPhil, Computer Science, 31 August 2005

Advisor: Dr. Chi-Keung Tang

Hong Kong Uni. of Science and Technology

BEng, Computer Science, 30 June 2003

First Class Honors/Minor in Mathematics

Hong Kong Uni. of Science and Technology

Work Experience/Internship

7 May 2020 – Now

Senior Research Director, Video Technology, Kuaishou Technology, China

--Lead a research team for video enhancement, video editing, and video quality assessment.

15 April 2020 – Now

Adjunct Professor, CSE Department, HKUST, Hong Kong, China

3 Jan 2017 – 20 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

1 April 2017 – 14 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

1 Sept 2015 – 31 Dec 2016

Principal Research Scientist, SenseTime Group Limited, Hong Kong, China

--Lead a team to develop a dual camera solution for mobile platform

1 Sept 2014 – 31 Aug 2015

Associate Professor, Department of Electrical Engineering, KAIST

1 Mar 2013 – 31 Aug 2014

Assistant Professor, Department of Electrical Engineering, KAIST

1 Jul 2009 – 28 Feb 2013

Assistant Professor, Department of Computer Science, KAIST

1 Jul 2010 – 30 Aug 2010

Visiting Researcher, MSRA

1 Jan 2009 – 30 Jun 2009

Research Fellow, NUS

1 Sept 2007 – 30 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 40th 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

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

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

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

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;

Publications

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

Citations: > 14,000; H-index: 63

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 (19 IEEE TPAMI, 2 ACM ToG, 4 IJCV, 9 IEEE TIP etc.)

1. 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**), 2023.
2. 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.
3. 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.
4. 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
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.

12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.

29. **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.
30. 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.
31. 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.
32. 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.
33. 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.
34. 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.
35. 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.
36. **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.
37. **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.
38. **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)
39. **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.
40. **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.
41. 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, 15 ICCV, 21 ECCV, 3 NeurIPS, etc.)

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.
2. 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.
3. 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.
4. 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.

5. 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.
6. 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.
7. Lei Ke, Henghui Ding, Martin Danelljan, **Yu-Wing Tai**, Chi-Keung Tang, Fisher Yu, *Video Mask Transfomer for High-Quality Video Instance Segmentation*, European Conference on Computer Vision (**ECCV**), 2022.
8. Qi Fan, Chi-Keung Tang, **Yu-Wing Tai**, *Few-Shot Object Detection with Model Calibration*, European Conference on Computer Vision (**ECCV**), 2022.
9. Qi Fan, Wenjie Pei, **Yu-Wing Tai**, Chi-Keung Tang, *Self-support few-shot semantic segmentation*, European Conference on Computer Vision (**ECCV**), 2022.
10. Qi Fan, Chi-Keung Tang, **Yu-Wing Tai**, *Few-shot video object detection*, European Conference on Computer Vision (**ECCV**), 2022.
11. 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.
12. 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.
13. Jiayin Cai, Changlin Li, Xin Tao, **Yu-Wing Tai**, *Image Multi-Inpainting via Progressive Generative Adversarial Networks*, ACM International Conference on Multimedia (**ACMMM**), 2022.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. 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.
21. Lei Ke, **Yu-Wing Tai**, Chi-Keung Tang, *Occlusion-Aware Video Object Inpainting*, IEEE International Conference on Computer Vision (**ICCV**), 2021.
22. 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.

23. 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.
24. Yanan Sun, Chi-Keung Tang, **Yu-Wing Tai**, *Semantic Image Matting*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.
32. 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.
33. 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.
34. 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.
35. 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.
36. 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.
37. 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.
38. 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.
39. Xiankai Lu, Wenguan Wang, Jianbing Shen, **Yu-Wing Tai**, David Crandall, Steven Hoi, *Learning Video Object Segmentation from Unlabeled Videos*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.

40. Weibin Wu, Yuxin Su, Xixian Chen, Shenglin Zhao, Irwin King, Michael Lyu, **Yu-Wing Tai**, *Towards Global Explanations of Convolutional Neural Networks with Concept Attribution*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
41. Weibin Wu, Yuxin Su, Xixian Chen, Shenglin Zhao, Irwin King, Michael Lyu, **Yu-Wing Tai**, *Boosting the Transferability of Adversarial Samples via Attention*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2020.
42. Yang You, Yujing Lou, Qi Liu, **Yu-Wing Tai**, Lizhuang Ma, Cewu Lu, Weiming Wang, *Pointwise Rotation-Invariant Network with Adaptive Sampling and 3D Spherical Voxel Convolution*, Thirty-Fourth AAAI Conference on Artificial Intelligence (**AAAI**), 2020.
43. Lei Ke, Wenjie Pei, Ruiyu Li, Xiaoyong Shen, **Yu-Wing Tai**, *Reflective Decoding Network for Image Captioning*, IEEE International Conference on Computer Vision (**ICCV**) 2019.
44. Canmiao Fu, Wenjie Pei, Qiong Cao, Chaopeng Zhang, Yong Zhao, Xiaoyong Shen, **Yu-Wing Tai**, *Non-local Recurrent Neural Memory for Supervised Sequence Modeling*, IEEE International Conference on Computer Vision (**ICCV**) 2019.
45. Jinkun Cao, Hongyang Tang, Hao-Shu Fang, Xiaoyong Shen, Cewu Lu, **Yu-Wing Tai**, *Cross-domain adaptation for animal pose estimation*, IEEE International Conference on Computer Vision (**ICCV**) 2019.
46. Qiao Gu, Guanzhi Wang, Mang Tik Chiu, **Yu-Wing Tai**, Chi-Keung Tang, *LADN: Local Adversarial Disentangling Network for Facial Makeup and De-Makeup*, IEEE International Conference on Computer Vision (**ICCV**) 2019.
47. Xiaohui Zeng, Chenxi Liu, Yu-Siang Wang, Weichao Qiu, Lingxi Xie, **Yu-Wing Tai**, Chi-Keung Tang, Alan L Yuille, *Adversarial attacks beyond the image space*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019.
48. Hongwei Yi, Chen Li, Qiong Cao, Xiaoyong Shen, Sheng Li, Guoping Wang, **Yu-Wing Tai**, *MMface: A multi-metric regression network for unconstrained face reconstruction*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019.
49. Wenjie Pei, Jiyuan Zhang, Xiangrong Wang, Lei Ke, Xiaoyong Shen, **Yu-Wing Tai**, *Memory-attended recurrent network for video captioning*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019.
50. Shangzhe Wu, Jiarui Xu, **Yu-Wing Tai**, Chi-Keung Tang, *Deep high dynamic range imaging with large foreground motions*, European Conference on Computer Vision (**ECCV**), 2018.
51. Yongyi Lu, **Yu-Wing Tai**, Chi-Keung Tang, *Attribute-guided face generation using conditional cyclegan*, European Conference on Computer Vision (**ECCV**), 2018.
52. Yongyi Lu, Shangzhe Wu, **Yu-Wing Tai**, Chi-Keung Tang, *Image generation from sketch constraint using contextual gan*, European Conference on Computer Vision (**ECCV**), 2018.
53. Hao-Shu Fang, Jinkun Cao, **Yu-Wing Tai**, Cewu Lu, *Pairwise body-part attention for recognizing human-object interactions*, European Conference on Computer Vision (**ECCV**), 2018.
54. Haoye Cai, Chunyan Bai, **Yu-Wing Tai**, Chi-Keung Tang, *Deep Video Generation, Prediction and Completion of Human Action Sequences*, European Conference on Computer Vision (**ECCV**), 2018.
55. Jinshan Pan, Sifei Liu, Deqing Sun, Jiawei Zhang, Yang Liu, Jimmy Ren, Zechao Li, Jinhui Tang, Huchuan Lu, **Yu-Wing Tai**, Ming-Hsuan Yang, *Learning Dual Convolutional Neural Networks for Low-Level Vision*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018.
56. Hao-Shu Fang, Guansong Lu, Xiaolin Fang, Jianwen Xie, **Yu-Wing Tai**, Cewu Lu, *Weakly and Semi Supervised Human Body Part Parsing via Pose-Guided Knowledge Transfer*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018.

57. Donghyeon Cho, Jinsun Park, Tae-Hyun Oh, **Yu-Wing Tai**, In So Kweon, *Weakly-and Self-Supervised Learning for Content-Aware Deep Image Retargeting*, IEEE International Conference on Computer Vision (**ICCV**) 2017.
58. Haoshu Fang, Shuqin Xie, **Yu-Wing Tai**, Cewu Lu, *RMPE: Regional multi-person pose estimation*, IEEE International Conference on Computer Vision (**ICCV**) 2017.
59. Jinshan Pan, Jiangxin Dong, **Yu-Wing Tai**, Zhixun Su, Ming-Hsuan Yang, *Learning Discriminative Data Fitting Functions for Blind Image Deblurring*, IEEE International Conference on Computer Vision (**ICCV**) 2017.
60. Qingcheng Xiao, Yun Liang, Liqiang Lu, Shengen Yan, Yu-Wing Tai, Exploring heterogeneous algorithms for accelerating deep convolutional neural networks on FPGAs, Design Automation Conference (**DAC**), 2017.
61. Taeyoung Kim, Yu-Wing Tai, Sung-Eui Yoon, PCA Based Computation of Illumination-Invariant Space for Road Detection, IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2017.
62. Jimmy Ren, Xiaohao Chen, Jianbo Liu, Wenxiu Sun, Jiahao Pang, Qiong Yan, **Yu-Wing Tai**, Li Xu, *Accurate Single Stage Detector Using Recurrent Rolling Convolution*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
63. Jinsun Park, Donghyeon Cho, **Yu-Wing Tai**, In So Kweon, *A Unified Approach of Multi-scale Deep and Hand-crafted Features for Defocus Estimation*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
64. Donghyeon Cho, **Yu-Wing Tai**, In So Kweon, *Natural Image Matting using Deep Convolutional Neural Networks*, European Conference on Computer Vision (**ECCV**), 2016.
65. Donghyeon Cho, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Photometric Stereo under Non-uniform Light Intensities and Exposures*, European Conference on Computer Vision (**ECCV**), 2016.
66. Gayoung Lee, **Yu-Wing Tai**, Junmo Kim, *Deep Saliency with Encoded Low level Distance Map and High Level Features*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016.
67. Jaesik Park, **Yu-Wing Tai**, Sudipta Sinha, In So Kweon, *Efficient and Robust Color Consistency for Community Photo Collections*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016.
68. Jimmy SJ. Ren, Yongtao Hu, **Yu-Wing Tai**, Chuan Wang, Li Xu, Wenxiu Sun, Qiong Yan, *Look, Listen and Learn - A Multimodal LSTM for Speaker Identification*, The 30th AAAI Conference on Artificial Intelligence (**AAAI**), 2016
69. Hyeokhyen Kwon, **Yu-Wing Tai**, *RGB-Guided Hyperspectral Image Upsampling*, IEEE International Conference on Computer Vision (**ICCV**) 2015.
70. Minhaeng Lee, **Yu-Wing Tai**, *Image Denoising via Coded Aperture Photography*, IEEE Conference on Image Processing (**ICIP**), 2015.
71. Hyeokhyen Kwon, **Yu-Wing Tai**, Stephen Lin, *Data-Driven Depth Map Refinement via Multi-scale Sparse Representation*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
72. Taehyun Oh, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Fast Randomized Singular Value Thresholding for Nuclear Norm Minimization*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
Received Gold Prize, 21th HumanTech Paper Award, Samsung Electronics Corp
73. Hae-Gon Jeon, Jaesik Park, Gyeongmin Choe, Jinsun Park, Yunsu Bok, **Yu-Wing Tai**, In So Kweon, *Accurate Depth Map Estimation from a Lenslet Light Field Camera*, IEEE International Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
74. Donghyeon Cho, Sunyeong Kim, **Yu-Wing Tai**, *Consistent Matting for Light Field Images*, European Conference on Computer Vision (**ECCV**), 2014.
75. Minhaeng Lee, Myung Jin Choi, **Yu-Wing Tai**, *Robust pan-sharpening via color samples relocation and edge aware*

interpolation, IEEE Conference on Image Processing (**ICIP**), 2014.

76. Sunyeong Kim, **Yu-Wing Tai**, *Hierarchical Nonrigid Model for 3D Medical Image Registration*, IEEE Conference on Image Processing (**ICIP**), 2014.
77. Jaesik Park, Sudipta Sinha, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Calibrating a non-isotropic near point light source using a plane*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
78. Gyeongmin Choe, Jaesik Park, **Yu-Wing Tai**, In So Kweon, *Exploiting Shading Cues in Kinect IR Images for Geometry Refinement*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
Received Silver Prize, 20th HumanTech Paper Award, Samsung Electronics Corp
79. Jiwhan Kim, Dongyoon Han, **Yu-Wing Tai**, Junmo Kim, *Salient Region Detection via High-Dimensional Color Transform*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2014.
80. Donghyeon Cho, Minhaeng Lee, Sunyeong Kim, **Yu-Wing Tai**, *Modeling the calibration pipeline of the Lytro camera and its application in high quality light-field image reconstruction*, IEEE International Conference on Computer Vision (**ICCV**) 2013.
81. Inchang Choi, Sunyeong Kim, Michael S. Brown, **Yu-Wing Tai**, *A Learning-Based Approach to Reduce JPEG Artifacts in Image Matting*, IEEE International Conference on Computer Vision (**ICCV**) 2013.
82. Taehyun Oh, Hyeongwoo Kim, **Yu-Wing Tai**, Jean-Charles Bazin, In So Kweon, *Partial Sum Minimization of Singular Values in RPCA for Low-Level Vision*, IEEE International Conference on Computer Vision (**ICCV**) 2013.
83. Jaesik Park, Sudipta Sinha, Yasuyuki Matsushita, **Yu-Wing Tai**, In So Kweon, *Multiview Photometric Stereo using Planar Mesh Parameterization*, IEEE International Conference on Computer Vision (**ICCV**) 2013.
Received Silver Prize, 19th HumanTech Paper Award, Samsung Electronics Corp
84. Lap-Fei Yu, Sai-Kit Yeung, **Yu-Wing Tai**, Stephen Lin, *Shading-based Shape Refinement of RGB-D Images*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2013.
85. Lap-Fai Yu, Sai-Kit Yeung, **Yu-Wing Tai**, Demetri Terzopoulos, Tony F. Chan, *Outdoor Photometric Stereo*, IEEE International Conference on Computational Photography (**ICCP**), 2013.
86. Fanbo Deng, Seon Joo Kim, **Yu-Wing Tai**, Michael S. Brown, *Color-aware Regularization for Gradient Domain Image Manipulation*, Asian Conference on Computer Vision (**ACCV**), 2012.
87. Inchang Choi, Minhaeng Lee, **Yu-Wing Tai**, *Video Matting Using Multi-Frame Nonlocal Matting Laplacian*, European Conference on Computer Vision (**ECCV**), 2012.
88. Jaesik Park, Tae Hyun Oh, Jiyoung Jung, **Yu-Wing Tai**, In So Kweon, *A Tensor Voting Approach for Multi-View 3D Scene Flow Estimation and Refinement*, European Conference on Computer Vision (**ECCV**), 2012.
89. Jaesik Park, Joon-Young Lee, **Yu-Wing Tai**, In So Kweon, *Modeling photo composition and its application to photo re-arrangement*, IEEE Conference on Image Processing (**ICIP**) 2012.
90. Sunyeong Kim, **Yu-Wing Tai**, Seon Joo Kim, Michael S. Brown, Yasuyuki Matsushita, *Nonlinear Camera Response Functions and Image Deblurring*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2012.
91. Jaesik Park, **Yu-Wing Tai**, In So Kweon, *Identigram/Watermark removal using cross-channel correlation*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2012.
Received Best Paper Award, 25th Workshop on Image Processing and Image Understanding (IPIU 2013)
92. Naejin Kong, **Yu-Wing Tai**, Sung Yong Shin, *A Physically-based Approach to Reflection Separation*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2012.
93. **Yu-Wing Tai**, Stephen Lin, *Motion-aware noise filtering for deblurring of noisy and blurry image*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2012.

94. Jaesik Park, Hyeongwoo Kim, **Yu-Wing Tai**, Michael S. Brown, In So Kweon, *High Quality Depth Map Upsampling for 3D-TOF Cameras*, IEEE International Conference on Computer Vision (**ICCV**) 2011.
95. Sungheum Kim, **Yu-Wing Tai**, Yunsoo Bok, Hyeongwoo Kim, Inso Kweon, *Two-phase approach for multi-view object extraction*, IEEE Conference on Image Processing (**ICIP**) 2011.
96. Rei Kawakami, John Wright, **Yu-Wing Tai**, Yasuyuki Matsushita, Moshe Ben-Ezra, Katsushi Ikeuchi, *High-resolution Hyperspectral Imaging via Matrix Factorization*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2011.
97. ShuaiCheng Liu, Michael S. Brown, Seon Joo Kim, **Yu-Wing Tai**, *Colorization for Image Super Resolution*, European Conference on Computer Vision (**ECCV**) 2010.
98. **Yu-Wing Tai**, Naejin Kong, Stephen Lin, Sung Yong Shin, *Coded Exposure Imaging for Projective Motion Deblurring*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2010.
99. Zheng Lu, **Yu-Wing Tai**, Moshe Ben-Ezra, Michael S. Brown, *A Framework for Ultra High Resolution 3D Imaging*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2010.
100. **Yu-Wing Tai**, ShuaiCheng Liu, Michael S. Brown, Stephen Lin, *Super Resolution using Edge Prior and Single Image Detail Synthesis*, IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2010.
101. Pierre-Yves Laffont, Jong Y. Jun, Christian Wolf, **Yu-Wing Tai**, Khalid Idrissi, George Drettakis, and Sung-Eui Yoon, *Interactive Content-Aware Zooming*, Graphics Interface (**GI**) 2010.
102. **Yu-Wing Tai**, Michael S. Brown, *Single Image Defocus Map Estimation Using Local Contrast Prior*. IEEE Conference on Image Processing (**ICIP**), 2009
103. **Yu-Wing Tai**, Hao Du, Michael S. Brown, Stephen Lin, *Image/Video Deblurring using a Hybrid Camera*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2008.
Received PREMIA (Singapore) Best Student Paper (2nd prize), 2008
104. **Yu-Wing Tai**, Michael S. Brown, Chi-Keung Tang, *Robust Estimation of Texture Flow Distortion via Dense Feature Sampling*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2007.
105. **Yu-Wing Tai**, Wai-Shun Tong, Chi-Keung Tang, *Perceptually-Inspired and Edge-Directed Color Image Super-Resolution*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2006: 1948-1955
106. **Yu-Wing Tai**, Wai-Shun Tong, Chi-Keung Tang, *Simultaneous Image Denoising and Compression by Multiscale 2D Tensor Voting*. International Conference on Pattern Recognition (**ICPR**) 2006: 818 -821
107. **Yu-Wing Tai**, Jiaya Jia, Chi-Keung Tang, *Local Color Transfer via Probabilistic Segmentation by Expectation-Maximization* IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2005: 747-754
108. Jiaya Jia, Tai-Pang Wu, **Yu-Wing Tai**, Chi-Keung Tang, *Video Repairing: Inference of Foreground and Background under Severe Occlusion*. IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2004: 364-371

Book Chapters

1. Chapter 3 - *Hybrid-imaging for motion deblurring*
Authors: Moshe Ben-Ezra, **Yu-Wing Tai**, Michael. Brown and Shree Nayar
Chapter 8 - *Richardson–Lucy deblurring for scenes under a projective motion path*
Authors: **Yu-Wing Tai** and Michael. Brown
Book: Motion Deblurring: Algorithms and Systems
Series: Image processing and machine vision
Published: May, 2014 by Cambridge University Press
Editors: A.N. Rajagopalan and Rama Chellappa
<http://www.cambridge.org/us/academic/subjects/engineering/image-processing-and-machine-vision/motion-deblurring-algorithms-and-systems>
2. Chapter 11 - *Correction of Spatially Varying Image and Video Motion Blur Using a Hybrid Camera*, pages 311 - 340

Authors: **Yu-Wing Tai** and Michael. Brown
Book: Image Restoration: Fundamentals and Advances
Series: Digital Imaging and Computer Vision
Published: September 04, 2012 by CRC Press
Editors: Bahadır Kursat Gunturk and Xin Li
<http://www.crcpress.com/product/isbn/9781439869550>