

邱維辰 Wei-Chen Chiu

Doctor of Engineering Science (Dr.-Ing.)
Max Planck Institute for Informatics






個人學經歷資料

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[↗ Personal Webpage](#) 個人網頁(含研究資料與成果、學術著作全文)

Education

- 2011–2016 **Dr.-Ing. (Doctor of Engineering)**, *Max Planck Institute for Informatics*,
(PhD defense date: Saarbrücken, Germany.
13th Sept. 2016)
 Department: Computer Vision and Multimodal Computing ⚡
Research Group: Scalable Learning and Perception ⚡
Advisor: Dr. Mario Fritz ⚡
Thesis Topic: Bayesian Non-Parametrics for Multi-Modal Segmentation
- 2008–2009 **Master of Science**, *National Chiao Tung University*, Hsinchu, Taiwan.
 Institute of Multimedia Engineering, College of Computer Science ⚡
GPA Overall: 4.00/4.00, 26 credits
Advisor: Prof. Jen-Hui Chuang ⚡, Co-advisor: Prof. Sheng-Jyh Wang ⚡
Thesis Topic: Probabilistic Modeling of Dynamic Traffic Flow between Non-Overlapping FOVs.
- 2004–2008 **Bachelor of Science**, *National Chiao Tung University*, Hsinchu, Taiwan.
 Electrical Engineering & Computer Science Undergraduate Honors Program ⚡
GPA Overall: 3.54/4.00, 159 credits
- Fall 2006 **Exchange Student**, *Carnegie Mellon University*, Pittsburgh, USA.
 Electrical and Computer Engineering (ECE) ⚡
GPA Overall: 3.67/4.00, 36 units
Major Courses: Computer Graphics, Computational Photography and Junior Projects
Advisor: Prof. Tsuhan Chen ⚡
- 2001–2004 **High School Graduation**, *National Tainan First Senior High School*, Tainan
City, Taiwan.


Honor and Distinctions

- 2017–present cacaFly Junior Chair Professor
 (聖洋科技青年講座教授)
- 2017–present Frank S Chen Junior Chair Professor
 (交通大學校長青年講座教授)
- 2017–present MOST Special Outstanding Talent Award
 (科技部延攬特殊優秀人才獎勵)
- 25/08/2019 Good Master Thesis Awards (won by my graduate students, Wei-Lung Chang
and Hsueh-Ying Lai)
 Chinese Image Processing and Pattern Recognition Society (IPPR)
- 23/12/2017 First Place (won by students co-supervised with Prof. Yu-Chiang Frank Wang:
Yen-Cheng Liu, Yuying Yeh, Hsuan-I Ho, and Tzu-Chien Fu)
 MOST Workshop on Generative Adversarial Networks and GAN Project Com-
petition

Academic and Working Experiences

- April.2019 – **Viscovery** **Consultant**, *Viscovery Pte. Ltd.*, Taipei, Taiwan.
Topic: Computer vision and machine learning algorithm development
- Aug.2017 –  **Assistant Professor**, *Department of Computer Science, National Chiao Tung University*, Hsinchu, Taiwan.
My Research Group: Enriched Vision Applications Laboratory (Room 708, EC Building)
- Feb.2017 – **Postdoctoral Researcher**, *Multimedia and Machine Learning Lab, Research Center for Information Technology Innovation (CITI), Academia Sinica*, Taipei, Taiwan.
July.2017  Laboratory Director: Dr. Yu-Chiang Frank Wang ⚡
- Aug.2016 – **Computer Vision Research Scientist**, *Viscovery Pte. Ltd.*, Taipei, Taiwan.
Jan.2017 **Viscovery** Topic: Developing deep learning algorithms for applications related to video content analysis, e.g. face/object/scene detection and recognition
- Summer 2015  **Teaching Assistant**, *Universität des Saarlandes*, Saarbrücken, Germany.
Course: High Level Computer Vision ⚡
Lecturer: Prof. Bernt Schiele ⚡ and Dr. Mario Fritz ⚡
- Spring 2011  **Internship**, *Max Planck Institute for Informatics*, Saarbrücken, Germany.
Department: Computer Vision and Multimodal Computing ⚡
Director: Prof. Bernt Schiele ⚡
Advisor: Dr. Mario Fritz ⚡
Collaborator: Dr. Ulf Blanke ⚡
Topic: Improving Kinect's depth by cross-modal stereo
- Winter 2010  **Engineer**, *Largan Precision Co. Ltd.*, Taichung, Taiwan.
Department: Image Processing
Topic: Algorithm research & design for softwares of computational photography
- 2009–2010  **Corporal (Compulsory)**, *R.O.C Army*, Taiwan.
Unit: 43 Artillery Command, 8th Army Corps
Position: Assistant field artillery leader of M114 155mm Howitzer
- Spring 2008  **Teaching Assistant**, *National Chiao Tung University*, Hsinchu, Taiwan.
Seminar: Electrical Engineering and Computer Science Technology
Lecturer: Prof. Shie-Yuan Wang ⚡
- Fall 2007  **Internship**, *Industrial Technology Research Institute*, Hsinchu, Taiwan.
Department: Computer Vision & Image Processing, Advanced Technology Center ⚡
Head: Dr. Ching-Chun Huang ⚡ (now assistant professor at National Chung Cheng University, Chiayi, Taiwan.)
Topic: Facial feature tracking and animation effect presentation

Academic Services

- Organizer Special Session Chair, the 31st IPPR Conference on Computer Vision, Graphics, and Image Processing (CVGIP), 2018
Industrial Liaison, the 16-th IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS), 2019
- Contributor Research Planning of Signal Processing Area, Communications Engineering Program, Ministry of Science and Technology, Taiwan, 2017
(電信學門研究發展規劃書-訊號處理領域)
- Area Chair the 16-th IEEE International Conference on Advanced Video and Signal-based Surveillance (AVSS), 2019
- Reviewer IEEE Transactions on Circuits and Systems for Video Technology (2013, 2019)
International Symposium on Wearable Computers (2014)
International Journal of Computer Vision (2015)
Journal of Information Science and Engineering (2016, 2017)
IEEE Signal Processing Letters (2016, 2017)
IEEE Transactions on Signal Processing (2016, 2017)
IEEE Transactions on Image Processing (2016, 2017)
IEEE Transactions on Pattern Analysis and Machine Intelligence (2017, 2018)
International Symposium on Pervasive Systems, Algorithms, and Networks (2017)
International Conference on Advanced Video and Signal-based Surveillance (2017, 2019)
Journal of Artificial Intelligence Research (2017)
International Workshop on Assistive Computer Vision and Robotics (2017)
ACM Computing Surveys (2017)
IEEE Transactions on Multimedia (2017)
The Visual Computer (2017, 2018)
IEICE Transactions on Information and Systems (2017, 2018)
International Conference on Pattern Recognition (2016, 2018)
IEEE International Conference on Acoustics, Speech and Signal Processing (2018, 2019)
IEEE Conference on Computer Vision and Pattern Recognition (2018, 2019)
IEEE Symposium on Computers and Communications (2018)
International Conference on Image Processing (2013, 2018, 2019)
International Conference on Intelligent Transportation Systems (2018)
European Conference on Computer Vision (2014, 2018)
Asian Conference on Computer Vision (2016, 2018)
IEEE International Conference on Visual Communications and Image Processing (2019)
British Machine Vision Conference (2019)
AAAI Conference on Artificial Intelligence (2019)
Neural Information Processing Systems (2019)
IEEE International Conference on Computer Vision (2019)

Full List of Publications ([f](#) [Google Scholar profile](#))

International Conference Papers

- Yen-Chung Chen, Keng-Jui Chang, Yu-Chiang Frank Wang, Yi-Hsuan Tsai, and **Wei-Chen Chiu**, "Guide Your Eyes: Learning Image Manipulation under Saliency Guidance," in *30th British Machine Vision Conference (BMVC)*, Cardiff, UK, September 09-12, 2019.
- Tsun-Hsuan Wang, Hou-Ning Hu, Chieh Hubert Lin, Yi-Hsuan Tsai, **Wei-Chen Chiu**, and Min Sun, "3D LiDAR and Stereo Fusion using Stereo Matching Network with Conditional Cost Volume Normalization," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Macau, China, November 04-08, 2019.
- Hsueh-Ying Lai, Yi-Hsuan Tsai, and **Wei-Chen Chiu**, "Bridging Stereo Matching and Optical Flow via Spatiotemporal Correspondence," in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, USA, June 16-20, 2019.
- Wei-Lun Chang, Hui-Po Wang, Wen-Hsiao Peng, and **Wei-Chen Chiu**, "All about Structure: Adapting Structural Information across Domains for Boosting Semantic Segmentation Abstract," in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, USA, June 16-20, 2019.
- Yen-Chung Chen, Keng-Jui Chang, Yi-Hsuan Tsai, and **Wei-Chen Chiu**, "Learning Patterns of Latent Residual for Improving Video Compression," in *Workshop and Challenge on Learned Image Compression (CLIC) in conjunction with IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Long Beach, CA, USA, June 16-20, 2019.
- Yi-Lun Liao, Yao-Cheng Yang, Yuan-Fang Lin, Pin-Jung Chen, Chia-Wen Kuo, **Wei-Chen Chiu**, and Yu-Chiang Frank Wang, "Learning Pose-Aware 3D Reconstruction via 2D-3D Self-Consistency," in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Brighton, UK, May 12-17, 2019.
- Tsun-Hsuan Wang, Fu-En Wang, Juan-Ting Lin, Yi-Hsuan Tsai, **Wei-Chen Chiu**, and Min Sun, "Plug-and-Play: Improve Depth Prediction via Sparse Data Propagation," in *IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, Canada, May 20-24, 2019.
- Hsuan-I Ho, **Wei-Chen Chiu**, and Yu-Chiang Frank Wang, "Summarizing First-Person Videos from Third Persons' Points of View," in *European Conference on Computer Vision (ECCV)*, Munich, Germany, September 08-14, 2018.
- Yen-Cheng Liu, Yu-Ying Yeh, Tzu-Chien Fu, Sheng-De Wang, **Wei-Chen Chiu**, and Yu-Chiang Frank Wang, "Detach and Adapt: Learning Cross-Domain Disentangled Deep Representation," in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Salt Lake City, Utah, USA, June 18-22, 2018.
- Tzu-Chien Fu, **Wei-Chen Chiu**, and Yu-Chiang Frank Wang, "Learning Guided Convolutional Neural Networks For Cross-Resolution Face Recognition," in *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, Roppongi, Tokyo, Japan, September 25-28, 2017.
- Yen-Cheng Liu, **Wei-Chen Chiu**, Sheng-De Wang, and Yu-Chiang Frank Wang, "Domain-Adaptive Generative Adversarial Networks For Sketch-To-Photo Inversion," in *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, Roppongi, Tokyo, Japan, September 25-28, 2017.
- Yang He, **Wei-Chen Chiu**, Margret Keuper, and Mario Fritz, "RGBD Semantic Segmentation Using Spatio-Temporal Data-Driven Pooling," in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Honolulu, Hawaii, USA, July 22-25, 2017.
- **Wei-Chen Chiu**, Fabio Galasso, and Mario Fritz, "Towards Segmenting Consumer Stereo Videos:

Benchmark, Baselines and Ensembles," in *Asian Conference on Computer Vision (ACCV)*, Taipei, Taiwan, November 20-24, 2016.

- **Wei-Chen Chiu** and Mario Fritz, "See the Difference: Direct Pre-Image Reconstruction and Pose Estimation by Differentiating HOG," in *IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, December 13-16, 2015.
- Julia Seiter, **Wei-Chen Chiu**, Mario Fritz, Oliver Amft, and Gerhard Troester, "Joint Segmentation and Activity Discovery using Semantic and Temporal Priors," in *IEEE International Conference on Pervasive Computing and Communications (PerCom)*, St Louis, Missouri, USA, March 23-27, 2015.
- **Wei-Chen Chiu**, Gregory S. Johnson, Daniel Mcculley, Oliver Grau, and Mario Fritz, "Object Disambiguation for Augmented Reality Applications," in *25nd British Machine Vision Conference (BMVC)*, Nottingham, UK, Sept 01-05, 2014.
- **Wei-Chen Chiu** and Mario Fritz, "Multi-Class Video Co-Segmentation with a Generative Multi-Video Model," in *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, Portland, Oregon, USA, June 23-28, 2013.
- **Wei-Chen Chiu**, Ulf Blanke, and Mario Fritz, "I spy with my little eye: Learning Optimal Filters for Cross-Modal Stereo under Projected Patterns," in *1st IEEE Workshop on Consumer Depth Cameras for Computer Vision (CDC4CV) in conjunction with International Conference on Computer Vision (ICCV)*, Barcelona, Spain, Nov 12, 2011.
- **Wei-Chen Chiu**, Ulf Blanke, and Mario Fritz, "Improving the Kinect by Cross-Modal Stereo," in *22nd British Machine Vision Conference (BMVC)*, Dundee, UK, Aug 29-Sept 02, 2011.
- Ching-Chun Huang, **Wei-Chen Chiu**, Sheng-Jyh Wang, and Jen-Hui Chuang, "Probabilistic Modeling of Dynamic Traffic Flow across Non-overlapping Camera Views," in *IEEE International Conference on Pattern Recognition (ICPR)*, Istanbul, Turkey, August 23-26, 2010.
- Qi Wu, Ching-Chun Huang, Shih-Yu Wang, **Wei-Chen Chiu**, and Tsuhan Chen, "Robust Parking Space Detection Considering Inter-Space Correlation," in *IEEE International Conference on Multimedia and Expo (ICME)*, Beijing, China, July 2-5, 2007.

Domestic Conference Paper/Presentation

- Yi-Lun Lee, Min-Yuan Tseng, Yu-Cheng Luo, Dung-Ru Yu, and **Wei-Chen Chiu**, "Learning Face Recognition Unsupervisedly by Disentanglement and Self-augmentation," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taitung, Taiwan, Aug 25-27, 2019.
- Yen-Chung Chen, Keng-Jui Chang, Yi-Hsuan Tsai, and **Wei-Chen Chiu**, "Boosting Video Compression via Discovering Residual Patterns," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taitung, Taiwan, Aug 25-27, 2019.
- Wei-Lun Chang, Hui-Po Wang, Wen-Hsiao Peng, and **Wei-Chen Chiu**, "Disentangling Domain-invariant Structural Information for Improving Semantic Segmentation," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taitung, Taiwan, Aug 25-27, 2019. (Best Paper Award)
- Hsueh-Ying Lai, Yi-Hsuan Tsai, and **Wei-Chen Chiu**, "Act Together, We Go Far: A Unified Model for Stereo Matching and Optical Flow," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taitung, Taiwan, Aug 25-27, 2019. (Good Paper Award)
- Yen-Chung Chen, Keng-Jui Chang, Yu-Chiang Frank Wang, and **Wei-Chen Chiu**, "Saliency-Driven Image Refinement," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Tainan, Taiwan, Aug 19-21, 2018.
- Chao-Yi Peng, Zhi-Yi Peng, Hoang Tran Vu, Nguyen Thanh Phat, **Wei-Chen Chiu**, Ching-Chun Huang, and Chia-Wen Lin, "A Robust Bottom-Up Framework for Lane Detection in Urban

Streets," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Nantou, Taiwan, Aug 21-23, 2017.

- Yen-Cheng Liu, Tzu-Chien Fu, **Wei-Chen Chiu**, Sheng-De Wang, and Yu-Chiang Frank Wang, "Buy One and Get One Free: Cross-Domain Feature Disentanglement Learning with Single Domain Supervision," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taiwan, Aug 21-23, 2017.
- Chao-Yi Peng, Zhi-Yi Peng, Hoang Tran Vu, Nguyen Thanh Phat, **Wei-Chen Chiu**, Ching-Chun Huang, and Chia-Wen Lin, "A Robust Bottom-Up Framework for Lane Detection in Urban Streets," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Nantou, Taiwan, Aug 21-23, 2017.
- Zhi-Yi Peng, Hoang Tran Vu, **Wei-Chen Chiu**, Ching-Chun Huang, and Chia-Wen Lin, "Traffic Sign Classification based on Deep Convolutional Network with Domain Adaptation," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Taiwan, Aug 21-23, 2017.
- **Wei-Chen Chiu**, Ching-Chun Huang, Jen-Hui Chuang, and Sheng-Jyh Wang, "Probabilistic Modeling of Dynamic Traffic Flow between Non-overlapping Camera Views," in *IPPR Conference on Computer Vision, Graphics ,and Image Processing (CVGIP)*, Nantou, Taiwan, Aug 23-25, 2009. (Good Paper Award)

Dissertation

- **Wei-Chen Chiu**, "Bayesian Non-Parametrics for Multi-Modal Segmentation," *Ph.D Dissertation*. ⚡
- **Wei-Chen Chiu**, "Probabilistic Modeling of Dynamic Traffic Flow between Non-Overlapping FOVs," *Master Thesis*. ⚡