

Ming-Ming Cheng *Curriculum Vitae*

Basic Information (<http://mmcheng.net/>)

Ming-Ming Cheng is a professor with [College of Computer and Control Engineering \(CCCE\)](#), [Nankai University](#). He received his PhD degree from [Tsinghua University](#) in 2012 under guidance of [Prof. Shi-Min Hu](#), and working closely with [Prof. Niloy Mitra](#) from [UCL](#). Then he did 2 years research fellow, working with [Prof. Philip Torr](#) in Oxford, UK. In 2014, he joint [Nankai University](#) as an associate Professor. He became a full professor since Dec. 2016.



Employment & Education

12/2016–now Professor, [Nankai University](#), Tianjin China.

9/2014–12/2016 Associate Professor, [Nankai University](#), Tianjin China.

9/2012–9/2014 Research Fellow, work with [Prof. Philip Torr](#) at [Torr Vision Group](#) and [University of Oxford](#), UK.

9/2007–7/2012 PhD, Dept. of Computer Science and Technology, [Tsinghua University](#), China

9/2003-7/2007 B.S., Dept. of Computer Science and Technology, [Xidian University](#), China. GPA: 90.6/100 (top 1%)

Research Interests

Computer graphics, computer vision, image retrieval, saliency detection, image segmentation, etc.

Publications & Patents

Representative Papers: (9000+ [Google scholar citations](#))

- D. P. Fan, **M.M. Cheng**, J. J. Liu, S. H. Gao, and A. Borji. Salient objects in clutter: Bringing salient object detection to the foreground. In *ECCV*, 2018.
- Y. Liu, P. T. Jiang, V. Petrosyan, S. J. Li, J. Bian, L. Zhang, and **M.M. Cheng**. DEL: Deep embedding learning for efficient image segmentation. In *IJCAI*, 2018.
- K. Zhao, W. Shen, S. Gao, D. Li, and **M.M. Cheng**. Hi-Fi: Hierarchical feature integration for skeleton detection. In *IJCAI*, 2018.
- D. P. Fan, C. Gong, Y. Cao, B. Ren, **M.M. Cheng**, and A. Borji. Enhanced-alignment measure for binary foreground map evaluation. In *IJCAI*, 2018.
- Zenglin Shi, Le Zhang, Yun Liu, Xiaofeng Cao, Yangdong Ye, **M.M. Cheng**, and Guoyan Zheng. Crowd counting with deep negative correlation learning. In *IEEE CVPR*, pages 5382–5390, 2018.
- W. Wang, J. Shen, F. Guo, **M.M. Cheng**, and A. Borji. Revisiting video saliency: A large-scale benchmark and a new model. In *IEEE CVPR*, 2018.
- S. J. Li, B. Ren, Y. Liu, **M.M. Cheng**, D. Frost, and V. A. Prisacariu. Direct line guidance odometry. In *ICRA*, 2018.
- J. X. Zhao, B. Ren, Q. Hou, and **M.M. Cheng**. Flic: Fast linear iterative clustering with active search. In *AAAI*, 2018.
- J. Yang, J. Liang, K. Wang, Y.L. Yang, and **M.M. Cheng**. Automatic model selection in subspace clustering via triplet relationships. In *AAAI*, 2018.
- J. Yang, Y. Sun, J. Liang, Y.L. Yang, and **M.M. Cheng**. Understanding image impressiveness inspired by instantaneous human perceptual cues. In *AAAI*, 2018.
- W. Y. Lin, F. Wang, **M.M. Cheng**, S. K. Yeung, P. H. S. Torr, M. N. Do, and J. Lu. Code: Coherence based decision boundaries for feature correspondence. *IEEE TPAMI*, 40(1):34–47, 2018.
- Z. Zhang, Y. Liu, X. Chen, Y. Zhu, **M.M. Cheng**, V. Saligrama, and P. H. S. Torr. Sequential optimization for efficient high-quality object proposal generation. *IEEE TPAMI*, 40(5):1209–1223, 2018.
- D.-P. Fan, **M.M. Cheng**, Y. Liu, T. Li, and A. Borji. Structure-measure: A New Way to Evaluate Foreground Maps. In *IEEE ICCV (Sportlight)*, 2017.
- J. Bian, W.Y. Lin, Y. Matsushita, S.K. Yeung, T. D. Nguyen, and **M.M. Cheng**. Gms: Grid-based motion statistics for fast, ultra-robust feature correspondence. In *IEEE CVPR*, 2017.
- Y. Wei, J. Feng, X. Liang, **M.M. Cheng**, Y. Zhao, and S. Yan. Object region mining with adversarial erasing: A simple classification to semantic segmentation approach. In *IEEE CVPR (Oral)*, 2017.

- W.Y. Lin, F. Wang, **M.M. Cheng**, S.K. Yeung, P. Torr, M. Do, and J. Lu. CODE: Coherence based decision boundaries for feature correspondence. *IEEE TPAMI*, 2017.
- Y. Liu, **M.M. Cheng**, X. Hu, K. Wang, and X. Bai. Richer convolutional features for edge detection. In *IEEE CVPR*, 2017.
- M.M. Cheng**, Q. Hou, S.H. Zhang, and P. L. Rosin. Intelligent visual media processing: When graphics meets vision. *JCST*, 2017.
- Q. Hou, **M.M. Cheng**, X.W. Hu, A. Borji, Z. Tu, and P.H. Torr. Deeply supervised salient object detection with short connections. In *IEEE CVPR*, 2017.
- X.C. Liu, **M.M. Cheng**, Y.K. Lai, and P.L. Rosin. Depth-aware neural style transfer. In *NPAR*, pages 4:1–4:10, 2017.
- J. Wang, H. Jiang, Z. Yuan, **M.M. Cheng**, X. Hu, and N. Zheng. Salient object detection: A discriminative regional feature integration approach. *IJCV*, 123(2):251–268, 2017.
- Y. Wei, X. Liang, Y. Chen, X. Shen, **M.M. Cheng**, Y. Zhao, and S. Yan. Stc: A simple to complex framework for weakly-supervised semantic segmentation. *IEEE TPAMI*, 39(11):2314–2320, 2017.
- M.M. Cheng**, Y. Liu, Q. Hou, J. Bian, P. Torr, S.M. Hu, and Z. Tu. Hfs: Hierarchical feature selection for efficient image segmentation. In *ECCV*, pages 867–882, 2016.
- S. Hare, S. Golodetz, A. Saffari, V. Vineet, **M.M. Cheng**, S. Hicks, and P. Torr. Struck: Structured output tracking with kernels. *IEEE TPAMI*, 38(10):2096–2109, 2016.
- M.M. Cheng**, V.A. Prisacariu, S. Zheng, P.H. S. Torr, and C. Rother. Densecut: Densely connected crfs for realtime grabcut. *Computer Graphics Forum*, 34(7), 2015.
- A. Borji, **M.M. Cheng**, H. Jiang, and J. Li. Salient object detection: A benchmark. *IEEE TIP*, 24(12):5706–5722, 2015. (Joint first author & corresponding author.).
- J. Valentin, V. Vineet, **M.M. Cheng**, D. Kim, S. Izadi, J. Shotton, P. Kohli, M. Niessner, A. Criminisi, and P. Torr. SemanticPaint: Interactive 3d labeling and learning at your fingertips. *ACM TOG*, 2015. (Joint first author & corresponding author.).
- M.M. Cheng**, N.J. Mitra, X. Huang, P.H.S. Torr, and S.M. Hu. Global contrast based salient region detection. *IEEE TPAMI*, 2014.
- M.M. Cheng**, S. Zheng, W.Y. Lin, V. Vineet, P. Sturgess, N. Crook, N.J. Mitra, and P.H.S. Torr. ImageSpirit: Verbal Guided Image Parsing. *ACM TOG*, 2014.
- M.M. Cheng**, Z. Zhang, and P.H.S. Torr. BING: Binarized normed gradients for objectness estimation at 300fps. In *IEEE CVPR (Oral, Accept rate = 5.57%)*, 2014.
- S. Zheng, **M.M. Cheng**, J. Warrell, P. Sturgess, V. Vineet, C. Rother, and P.H.S. Torr. Dense semantic image segmentation with objects and attributes. In *IEEE CVPR*, 2014.
- M.M. Cheng**, N.J. Mitra, X. Huang, and S.M. Hu. SalientShape: Group saliency in image collections. *The Visual Computer*, 2014.
- M.M. Cheng**, J. Warrell, W.Y. Lin, S. Zheng, V. Vineet, and N. Crook. Efficient salient region detection with soft image abstraction. In *IEEE ICCV*, 2013.
- W.Y. Lin, **M.M. Cheng**, S. Zheng, J. Lu, and N. Crook. Robust non-parametric data fitting for correspondence modeling. In *IEEE ICCV*, 2013.
- S.M. Hu, T. Chen, K. Xu, **M.M. Cheng**, and R. R. Martin. Internet visual media processing: a survey with graphics and vision applications. *The Visual Computer*, pages 1–13, 2013.
- T. Chen, P. Tan, L.Q. Ma, **M.M. Cheng**, A. Shamir, and S.M. Hu. PoseShop: Human image database construction and personalized content synthesis. *IEEE TVCG*, 2013.
- M.M. Cheng**. *Saliency and Similarity Detection for Image Scene Analysis*. PhD thesis, Tsinghua University, Beijing, China, 2012.
- Y. Zheng, X. Chen, **M.M. Cheng**, K. Zhou, S.M. Hu, and N.J. Mitra. Interactive images: Cuboid-based scene understanding for smart manipulation. *ACM TOG (SIGGRAPH)*, 31(4), 2012.
- F.L. Zhang, **M.M. Cheng**, J. Jia, and S.M. Hu. ImageAdmixture: Putting together dissimilar objects from groups. *IEEE TVCG*, 2012.
- M.M. Cheng**, G.X. Zhang, N.J. Mitra, X. Huang, and S.M. Hu. Global contrast based salient region detection. In *IEEE CVPR*, pages 409–416, 2011.
- M.M. Cheng** and G.X. Zhang. Connectedness of random walk segmentation. *IEEE TPAMI*, 33, 2011.
- M.M. Cheng**, F.L. Zhang, N.J. Mitra, X. Huang, and S.M. Hu. RepFinder: Finding approximately repeated scene elements for image editing. *ACM TOG (SIGGRAPH)*, 29(4):83:1–8, 2010.
- T. Chen, **M.M. Cheng**, P. Tan, A. Shamir, and S.M. Hu. Sketch2Photo: Internet image montage. *ACM TOG*, 28(5):124:1–10, 2009.
- G.X. Zhang, **M.M. Cheng**, S.M. Hu, and R.R. Martin. A shape-preserving approach to image resizing. *Computer Graphics Forum*, 28(7):1897–1906, 2009.

Notes: **IEEE TPAMI** is the #1 IEEE publication. **ACM TOG** is the [most-cited](#) ACM Transaction. **IEEE TPAMI**, **ACM TOG**, and **IEEE TVCG** are A class journals in the [CCF recommendation list](#). **SIGGRAPH**, **CVPR**, and **ICCV** have CiteSeer impact factor ranking top 0.7%, top 5%, and top 5% of all computer science journals and conferences.

Patents: [10 Chinese patents](#) granted and [3 International patents](#) are published.

Major Honors & Awards

- 10/2016 [ACM China Raising Star Award](#)
- 8/2013 [Outstanding Doctoral Dissertations Award](#) from Beijing Municipal Government
- 6/2012 [Beijing Municipal Government Award for “Outstanding PhD Graduates”](#)
- 8/2011 [IBM Ph.D. Fellowship](#)
- 12/2010 [Google PhD Fellowship](#)
- 2010 [Scholarship Award for Excellent Doctoral Student](#) funded by Ministry of Education
- 6/2006 Microsoft [Windows Embedded Student Challenge](#), 3rd Place in the World Final Competition. (\$4,000)

Highlighted Research Experience

Objectness estimation: This work presented a novel method for *objectness* estimation, which is usually represented as a value which reflects how likely an image window covers an object of *any category* image windows. We show on the standard PASCAL VOC benchmark that the proposed method is 1000× faster than competitive methods, while producing better results. The corresponding C++ source code got 500+ downloads in 2 days after its initial release! This paper has been published in **IEEE CVPR (Oral)** 2014.

Saliency detection: This work aims at the fundamental computer vision problem of salient object detection. Its accuracy (precision = 90%, recall = 90%) is much better than previous best results (precision = 75%, recall = 83%), when evaluated on the largest public available dataset. The source code has been request by and shared to more than 1000+ individuals for research or commercial usage. My saliency detection paper is currently [the 2nd most cited paper](#) in all 400+ IEEE CVPR 2011 papers, and its journal version published at **IEEE TPAMI** 2015.

Sketch2Photo: This work was selected as one of the *10 most innovative and promising worldwide initiatives of 2009* by the [Netexplorateur](#) jury, under the aegis of French government. The related introduction video in [Vimeo](#) has attracted 1,000,000+ clicks within 6 months. It also received the best research achievement award in China National Computer Conference 2010. The online [commercial software](#) also draws great user attention. I'm in charge of the retrieval algorithm (first half) of this work. The corresponding research paper was published in **ACM TOG** 2009.

Project experiences: I participated in several national ([973](#), [863](#), [NSFC](#), etc.) and international ([EPSRC](#), etc.) research program.

Professional Activities

Program/Organization Co-Chair: VALSE [2016](#), CVM [2017](#), CCCV [2017](#)

Publicity/Website Chair: ACCV [2016](#), CVPR [2019](#),

Media Coverage

My works have been reported by several famous international media, including [BBC](#), [Huffington Post](#), [UK Telegraph](#), [Spiegel](#), etc.

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