

# 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 joined [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: (7000+ [Google scholar citations](#))

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 (Oral)*, 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.

Qibin Hou, **M.M. Cheng**, Xiao-Wei Hu, Ali Borji, Zhuowen Tu, and Philip Torr. Deeply supervised salient object detection with short connections. In *IEEE CVPR*, 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*, 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. Sturges, 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. SaliencyShape: 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 2<sup>nd</sup> 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/Orgnization 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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