

Tao Chen 陈韬

PERSONAL INFO

Gender: Male
Date of Birth: Feb 3, 1984
Hometown: Yantai, Shandong Province, China
Address: 500 W. 120th St. Rm 1312,
Department of Electrical Engineering,
Columbia University, New York, NY 10027, USA
Phone: (+1) 607-793-8864
Email: taochen@ee.columbia.edu
Homepage: <http://www.ee.columbia.edu/dvmm/vso/~taochen/>



EDUCATION

2005.9 - 2011.1 **Ph.D.** in Computer Science and Technology, Tsinghua University, China.
Dissertation: Internet Image Composition and Rendering Based on Interactive Graphics
Advisor: Prof. Shi-Min Hu (http://cg.cs.tsinghua.edu.cn/prof_hu.htm)
2002.9 - 2005.7 **B.E.** in Department of Physics (Fundamental Science Class), Tsinghua University, China.

WORKING EXPERIENCE

2005.9 – 2013.2 **Tsinghua University, China. Research assistant** (05.9-11.1) and **postdoctoral researcher** (11.1-13.2)
Advisor: Prof. Shi-Min Hu (http://cg.cs.tsinghua.edu.cn/prof_hu.htm)
Research area: computer graphics and image/video editing

- Proposed Sketch2Photo, an Internet image montage system
- Proposed human image database construction and personalized content synthesis methods
- Proposed a motion aware gradient-domain video composition method

2012.9 – 2013.2 **Tel Aviv University & Interdisciplinary Center, Israel. Postdoctoral researcher**
Advisor: Prof. Daniel Cohen-Or (<http://www.cs.tau.ac.il/~dcor/>) and Prof. Ariel Shamir (<http://www.faculty.idc.ac.il/arik/>)
Research area: image-based modeling

- Proposed 3-Sweep, an interactive image-based modeling system

2013.3-present **Columbia University, USA. Postdoctoral researcher**
Advisor: Prof. Shih-Fu Chang (<http://www.ee.columbia.edu/~sfchang/>)
Research area: social multimedia, large-scale image dataset and computer vision

- Working on visual sentiment classification and analysis

SELECTED AWARDS

2012 Natural Science Award of Ministry of Education, China, First Class, 2012. (36 teams awarded per year in China)
2011 2011 China Computer Federation Best Dissertation Award (10 CS PhD graduates awarded per year in China)
2011 Best Dissertation Award of Tsinghua University (Ranked 3 out of 60 PhD graduates)
2010 The Netexplorateur Internet Invention Award (10 awarded per year worldwide, hosted by Netexplo observatory and French government)
2009 “LuZengYong” CAD&CG High Technology Award (6 awarded per year in China)
2009 First Class Scholarship, Tsinghua University (top 5%)

SELECTED JOURNAL & CONFERENCE PAPERS

- **Tao Chen**, Felix X. Yu, Jiawei Chen, Yin Cui, Yan-Ying Chen, Shih-Fu Chang. Object-Based Visual Sentiment Concept Analysis and Application. ACM Multimedia 2014 (full paper).

- **Tao Chen**, Zhe Zhu, Ariel Shamir, Shi-Min Hu, Daniel Cohen-Or. 3-Sweep: Extracting Editable Objects from a Single Photo. ACM Transactions on Graphics (TOG). Vol. 32. No. 6. Siggraph Asia 2013.
- **Tao Chen**, Ming-Ming Cheng, Ping Tan, Ariel Shamir, Shi-Min Hu. Sketch2Photo: Internet Image Montage. ACM Transactions on Graphics (TOG) Volume 28, Issue 5 (December 2009), Article 124. Siggraph Asia 2009.
- **Tao Chen**, Ping Tan, Li-Qian Ma, Ming-Ming Cheng, Ariel Shamir, Shi-Min Hu. PoseShop: A Human Image Database and Personalized Content Synthesis. IEEE Transactions on Visualization and Computer Graphics, Vol.19, No. 5, 824-837. 2013.
- **Tao Chen**, Jun-Yan Zhu, Ariel Shamir, Shi-Min Hu. Motion-Aware Gradient Domain Video Composition. IEEE Transactions on Image Processing, Vol. 22, No.7, 2532 - 2544. 2013.
- **Tao Chen**, Ai-Dong Lu, Shi-Min Hu. Visual Storylines: Semantic Visualization of Movie Sequence. Computers & Graphics 36.4: 241-249. 2012.
- Yan-Ying Chen, **Tao Chen**, Winston H. Hsu, Hong-Yuan Mark Liao, Shih-Fu Chang. Predicting Viewer Affective Comments Based on Image Content in Social Media. ACM ICMR 2014 (full paper).
- Chen Goldberg, **Tao Chen**, Fang-Lve Zhang, Ariel Shamir, Shi-Min Hu. Data-Driven Scene Object Manipulation. Computer Graphics Forum, vol. 31, no. 2pt1, pp. 265-274. Eurographics 2012.
- Song-hai Zhang, **Tao Chen**, Yi-Fei Zhang, Shi-Min Hu, Ralph R. Martin. Vectorizing Cartoon Animations. IEEE Transaction on Visualization and Computer Graphics, 2009, Vol. 15, No. 4, May/June, 618-629.
- Shi-Min Hu, **Tao Chen**, Kun Xu, Ming-Ming Cheng, Ralph R. Martin. Internet visual media processing: a survey with graphics and vision applications. The Visual Computer, Vol. 29, No.5, 393-405. 2013.
- Damian Borth, Rongrong Ji, **Tao Chen**, Thomas Breuel, Shih-Fu Chang. Large-scale Visual Sentiment Ontology and Detectors Using Adjective Noun Pairs. ACM Multimedia Brave New Idea, Barcelona, Spain, Oct 2013.
- Damian Borth, **Tao Chen**, Rong-Rong Ji, Shih-Fu Chang. SentiBank: Large-Scale Ontology and Classifiers for Detecting Sentiment and Emotions in Visual Content. ACM Multimedia, Barcelona, Spain, Oct 2013.
- Subhabrata Bhattacharya, Behnaz Nojavanasghari, **Tao Chen**, Dong Liu, Shih-Fu Chang, Mubarak Shah. Towards a Comprehensive Computational Model for Aesthetic Assessment of Videos. ACM Multimedia Grand Challenge, Barcelona, Spain, Oct 2013.
- Felix X. Yu, Liangliang Cao, Michele Merler, Noel Codella, **Tao Chen**, John Smith, Shih-Fu Chang. Modeling Attributes from Category-Attribute Proportions. ACM Multimedia 2014 (short paper).
- Song-Hai Zhang, **Tao Chen**, Yi-Fei Zhang, Shi-Min Hu, Ralph R. Martin. Video based running water animation in Chinese painting style. Science in China Series F: Information Sciences, 2009, Vol. 52, No. 2, 162-171.

ISSUED CHINESE PATENTS:

- Shi-Min Hu, **Tao Chen**, Yi-Fei Zhang, Song-Hai Zhang. A vectorization method for rasterized color image. 200810102127.9.
- Shi-Min Hu, **Tao Chen**, Ming-Ming Cheng, Song-Hai Zhang. An image composition method based on mixed gradient field and mixed boundary conditions. 200910084769.5.
- Shi-Min Hu, **Tao Chen**, Ming-Ming Cheng, Song-Hai Zhang. An automatic evaluation method of image composition quality based on large-scale image dataset. 200910086937.4.
- Shi-Min Hu, Yi-Fei Zhang, **Tao Chen**, Song-Hai Zhang. A flow structure map automatic generation method for real running water video. 200810114119.6.
- Shi-Min Hu, Ming-Ming Cheng, **Tao Chen**, Song-Hai Zhang. A sketch based Internet image scene item extraction method and system. 200910081069.0.
- Shi-Min Hu, Ming-Ming Cheng, **Tao Chen**, Song-Hai Zhang. A high quality curve extraction method for cartoon. 200810106664.0.

PROJECT IMPACT

- **Sketch2Photo**
Project demonstration video went viral on Vimeo with 1 million views in Oct. 2009.
Reported by Gizmodo, Lifehacker, www.gov.cn and various tech magazines and websites in US, UK, France,

Germany, Japan, Singapore and China etc.

Selected as one of the top ten Internet inventions in 2009 by Netexplo global observatory for digital change, and invited to give speech in French Senate.

Implemented web-based application with Tencent Research Institute. Attracted more than 40,000 users.

- **3-Sweep**

Project demonstration video went viral on YouTube with 1 million views in Sept. 2013 (1.86M views in total).

Reported globally including Wired, Engadget, Gizmodo, Gamasutra and Huffington Post UK. Included in CNN's Friday Links. Received significant interest from industry.

FORMER RESEARCH GRANTS

- Natural Science Foundation of China No. 61103079. Research on technologies of intelligent Internet video retrieval and compositing. 36,000 USD.
- First Class China Postdoctoral Science Foundation No. 2012M510028. Research on Internet image database construction and media content composition. 13,000 USD.
- National High Technology Research & Development Program of China (863) No. 2012AA011903. Sub-subject: Research on stereo image processing and interactive technology. 66,000 USD.

FORMER LEADING ENGINEERING PROJECTS

- Intelligent Video Computing technology. Party A: SAMSUNG. 2011. Project Scale: 40,000 USD.
- Sketch Retrieval and sketch based content generation development. Party A: SAMSUNG. 2012. Project Scale: 100,000 USD.
- Optimal Interaction System for Image and Video Segmentation. Party A: SAMSUNG. 2012. Project Scale: 50,000 USD.

INVITED TALKS (U.S.)

- Feb 7, 2014
Inviter: School of Engineering Design, Penn States University
Topic: Sketch&Sweep: Data-Driven Image-based Modeling and Manipulation
- April 11, 2014
Inviter: DAQRI (Silicon Valley Office)
Topic: 3-Sweep: Extracting Editable Objects from a Single Photo

SKILLS

- Programming:
Proficient in C/C++ and Matlab
Skilled in computer graphics and image/video processing
Skilled in C++ libraries: OpenCV, MFC, Taucs, MKL, STL, OpenGL, QT, OpenMesh, Familiar with python, C#, javascript, php.
- Languages: Mandarin (Native speaker), English