

# Chongyang Ma

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CONTACT INFORMATION	Snap Inc. 2850 Ocean Park Boulevard Santa Monica, CA 90405, U.S.A.	<i>Mobile:</i> +1-(213)291-5442 <i>E-mail:</i> chongyangm@gmail.com <i>Homepage:</i> <a href="http://chongyangma.com/">http://chongyangma.com/</a>
RESEARCH INTERESTS	Computer graphics and computer vision: deep generative models, image/video manipulation, motion capture, human digitization, face tracking, 3D reconstruction, data-driven animation, procedural modeling, digital geometry processing, texture synthesis.	
EDUCATION	<b>Tsinghua University</b> , Beijing, China	
	Ph.D., Institute for Advanced Study, <ul style="list-style-type: none"><li>• Major: Computer Science</li><li>• Adviser: Dr. Baining Guo</li></ul>	Sep 2007 to Jul 2012
	B.S., Fundamental Science Class, <ul style="list-style-type: none"><li>• Major: Mathematics and Physics</li></ul>	Sep 2004 to Jul 2007
	<b>High School attached to Tsinghua University</b> , Beijing, China	
	National Honored Science Class,	Sep 2001 to Aug 2004
WORK EXPERIENCE	<b>Snap Inc.</b> , U.S.A. <ul style="list-style-type: none"><li>• Senior Research Scientist</li><li>• Senior Research Engineer</li><li>• Research Engineer</li></ul>	Jun 2018 to present Nov 2017 to May 2018 Nov 2016 to Nov 2017
	<b>Activision Publishing, Inc.</b> , U.S.A. <ul style="list-style-type: none"><li>• Senior Computer Vision Research Engineer</li></ul>	Jul 2015 to Nov 2016
	<b>University of Southern California</b> , U.S.A. <ul style="list-style-type: none"><li>• Postdoctoral Scholar in Geometric Capture Lab</li></ul>	Oct 2013 to Jun 2015
	<b>The University of British Columbia</b> , Canada <ul style="list-style-type: none"><li>• Postdoctoral Fellow in IMAGER Laboratory</li></ul>	Sep 2012 to Sep 2013
OTHER POSITIONS	<b>Weta Digital</b> , New Zealand <ul style="list-style-type: none"><li>• Research and Development Intern</li></ul>	Jun 2014 to Aug 2014
	<b>INRIA Nancy Grand-Est</b> , France <ul style="list-style-type: none"><li>• Visiting student in ALICE team</li></ul>	Aug 2011 to Feb 2012
	<b>Microsoft Research Asia</b> , China <ul style="list-style-type: none"><li>• Research Intern in Internet Graphics group</li></ul>	Mar 2012 to Jul 2012 Apr 2008 to Aug 2011
PUBLICATIONS	[23] Kekai Sheng, Weiming Dong, Haibin Huang, <b>Chongyang Ma</b> and Bao-Gang Hu. 2018. “Gourmet Photography Dataset for Food Image Aesthetic Assessment”. SIGGRAPH Asia Technical Briefs.	

- [22] Shunsuke Saito, Liwen Hu, **Chongyang Ma**, Hikaru Ibayashi, Linjie Luo and Hao Li. 2018. “3D Hair Synthesis Using Volumetric Variational Autoencoders”. *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2018)*, Vol 37, Issue 6, 208:1–208:12.
- [21] Kekai Sheng, Weiming Dong, **Chongyang Ma**, Xing Mei, Feiyue Huang and Bao-Gang Hu. 2018. “Attention-based Multi-Patch Aggregation for Image Aesthetic Assessment”. *Proceedings of ACM Multimedia Conference (MM)*, 879–886.
- [20] Zeng Huang, Tianye Li, Weikai Chen, Yajie Zhao, Jun Xing, Chloe LeGendre, Linjie Luo, **Chongyang Ma** and Hao Li. 2018. “Deep Volumetric Video From Very Sparse Multi-View Performance Capture”. *Proceedings of the 15th European Conference on Computer Vision (ECCV)*, 336–354.
- [19] Daniel Ron, Kun Duan, **Chongyang Ma**, Ning Xu, Shenlong Wang, Sumant Hanumante and Dhritiman Sagar. 2018. “Monocular Depth Estimation via Deep Structured Models with Ordinal Constraints”. *Proceedings of the 6th International Conference on 3D Vision (3DV)*, 570–577.
- [18] Jonathan Palacios, Lawrence Roy, Prashant Kumar, Chen-Yuan Hsu, Weikai Chen, **Chongyang Ma**, Li-Yi Wei and Eugene Zhang. 2017. “Tensor Field Design in Volumes”. *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2017)*, Vol 36, Issue 6, 188:1–188:15.
- [17] Alex Smith, Sven Pohle, Wan-Chun Ma, **Chongyang Ma**, Xian-Chun Wu, Yanbing Chen, Etienne Danvoye, Jorge Jimenez, Sanjit Patel, Mike Sanders and Cyrus A. Wilson. 2017. “Emotion Challenge: Building a New Photoreal Facial Pipeline for Games”. *Proceedings of the Digital Production Symposium (DigiPro)*, 8:1–8:2.
- [16] Sema Berkiten, Maciej Halber, Justin Solomon, **Chongyang Ma**, Hao Li and Szymon Rusinkiewicz. 2017. “Learning Detail Transfer based on Geometric Features”. *Computer Graphics Forum (Proceedings of Eurographics 2017, Best Paper Award Honorable Mention)*, Vol 36, Issue 2, 361–373.
- [15] Yong Zhang, Weiming Dong, **Chongyang Ma**, Xing Mei, Ke Li, Feiyue Huang, Bao-Gang Hu and Oliver Deussen. 2017. “Data-Driven Synthesis of Cartoon Faces Using Different Styles”. *IEEE Transactions on Image Processing (TIP)*, Vol 26, Issue 1, 464–478.
- [14] Jonathan Palacios, **Chongyang Ma**, Weikai Chen, Li-Yi Wei and Eugene Zhang. 2016. “Tensor Field Design in Volumes”. *SIGGRAPH Asia Technical Briefs*, 18:1–18:4.
- [13] Wan-Chun Ma, Mathieu Lamarre, Etienne Danvoye, **Chongyang Ma**, Manny Ko and Cyrus Wilson. 2016. “Semantically-aware Blendshape Rigs from Facial Performance Measurements”. *SIGGRAPH Asia Technical Briefs*, 3:1–3:4.
- [12] Yan Kong, Weiming Dong, Xing Mei, **Chongyang Ma**, Tong-Yee Lee, Siwei Lyu, Feiyue Huang and Xiaopeng Zhang. 2016. “Measuring and Predicting Visual Importance of Similar Objects”. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, Vol 22, Issue 12, 2564–2578.
- [11] Liwen Hu, **Chongyang Ma**, Linjie Luo and Hao Li. 2015. “Single-View Hair Modeling Using A Hairstyle Database”. *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2015)*, Vol 34, Issue 4, 125:1–125:9.
- [10] Hao Li, Laura Trutoiu, Kyle Olszewski, Lingyu Wei, Tristan Trutna, Pei-Lun Hsieh, Aaron Nicholls and **Chongyang Ma**. 2015. “Facial Performance Sensing Head-Mounted Display”. *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2015)*, Vol 34, Issue 4, 47:1–47:9.

- [9] Pei-Lun Hsieh, **Chongyang Ma**, Jihun Yu and Hao Li. 2015. “Unconstrained Realtime Facial Performance Capture”. Proceedings of the 28th IEEE International Conference on Computer Vision and Pattern Recognition (CVPR 2015), 1675–1683.
- [8] Liwen Hu, **Chongyang Ma**, Linjie Luo, Li-Yi Wei and Hao Li. 2014. “Capturing Braided Hairstyles”. ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2014), Vol 33, Issue 6, 225:1–225:9.
- [7] Liwen Hu, **Chongyang Ma**, Linjie Luo and Hao Li. 2014. “Robust Hair Capture Using Simulated Examples”. ACM Transactions on Graphics (Proceedings of SIGGRAPH 2014), Vol 33, Issue 4, 126:1–126:10.
- [6] **Chongyang Ma**, Haibin Huang, Alla Sheffer, Evangelos Kalogerakis and Rui Wang. 2014. “Analogy-Driven 3D Style Transfer”. Computer Graphics Forum (Proceedings of Eurographics 2014), Vol 33, Issue 2, 175–184.
- [5] **Chongyang Ma**, Nicholas Vining, Sylvain Lefebvre and Alla Sheffer. 2014. “Game Level Layout from Design Specification”. Computer Graphics Forum (Proceedings of Eurographics 2014), Vol 33, Issue 2, 95–104.
- [4] **Chongyang Ma**, Li-Yi Wei, Sylvain Lefebvre and Xin Tong. 2013. “Dynamic Element Textures”. ACM Transactions on Graphics (Proceedings of SIGGRAPH 2013), Vol 32, Issue 4, 90:1–90:10.
- [3] **Chongyang Ma**, Li-Yi Wei and Xin Tong. 2011. “Discrete Element Textures”. ACM Transactions on Graphics (Proceedings of SIGGRAPH 2011), Vol 30, Issue 4, 62:1–62:10.
- [2] Baoquan Liu, Li-Yi Wei, Xu Yang, **Chongyang Ma**, Ying-Qing Xu, Baining Guo and Enhua Wu. 2011. “Non-Linear Beam Tracing on a GPU”. Computer Graphics Forum, Vol 30, Issue 8, 2156–2169.
- [1] **Chongyang Ma**, Li-Yi Wei, Baining Guo and Kun Zhou. 2009. “Motion Field Texture Synthesis”. ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2009), Vol 28, Issue 5, 110:1–110:8.

MANUSCRIPTS

- [2] Zaiwei Zhang, Zhenpei Yang, **Chongyang Ma**, Linjie Luo, Alexander Huth, Etienne Vouga, Qixing Huang. 2018. “Deep Generative Modeling for Scene Synthesis via Hybrid Representations”. arXiv:1808.02084, 1–18.
- [1] Fan Tang, Weiming Dong, Yiping Meng, **Chongyang Ma**, Fuzhang Wu, Xinrui Li and Tong-Yee Lee. 2018. “Image Retargetability”. arXiv:1802.04392, 1–11.

DISSERTATION

**Chongyang Ma**. 2012. “Modeling Geometric and Dynamic Details Based on Texture Exemplars”. PhD Thesis, Tsinghua University.

PATENTS

11 US patents filed in total. Selected list:

- [4] Wan-Chun Ma and **Chongyang Ma**. “Systems and Methods for Automating the Animation of Blendshape Rigs”. US Patent No. 15/299,916, filed Oct 21, 2016.
- [3] Wan-Chun Ma and **Chongyang Ma**. “Systems and Methods for Automating the Personalization of Blendshape Rigs Based on Performance Capture Data”. US Patent No. 15/299,882, filed Oct 21, 2016.
- [2] Li-Yi Wei, **Chongyang Ma** and Xin Tong. “Discrete Element Texture Synthesis”. US Patent 8698829, granted Apr 15, 2014.
- [1] Li-Yi Wei, **Chongyang Ma**, Baining Guo and Kun Zhou. “Motion Field Texture Synthesis”. US Patent 20110012910, filed Jul 15, 2009.

TEACHING Co-Instructor, University of Southern California, Department of Computer Science  
 CSCI 599: Digital Geometry Processing SS 2014  
 CSCI 420: Computer Graphics FS 2014

SUPERVISION **Snap Inc.**, Research Team

David Futschik, summer intern	Jun 2018 to Sep 2018
Davis Rempe, summer intern	Jun 2018 to Sep 2018
Tianye Li, summer intern	May 2018 to Aug 2018
Seonghyeon Nam, summer intern	May 2018 to Aug 2018
Daniel Ron, summer intern	May 2017 to Nov 2017

**University of Southern California**, Department of Computer Science

Liwen Hu, MSc by July 2014, PhD since Aug 2014	Sep 2013 to Jun 2015
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PROFESSIONAL ACTIVITIES Program committee

- Shape Modeling International (SMI) 2018
- Computer Animation and Social Agents (CASA) 2017, 2018
- ACM Symposium on Interactive 3D Graphics and Games (I3D) 2015–2018
- ACM/Eurographics Symposium on Computer Animation (SCA) 2015, 2016
- Pacific Graphics 2015, 2016

Paper reviewer

- ACM SIGGRAPH 2013–2018
- ACM SIGGRAPH Asia 2013–2018
- Eurographics 2010, 2013–2018
- Pacific Graphics 2011, 2013, 2014, 2018
- Computer Graphics International 2012
- CAD/Graphics 2013
- Asian Conference on Computer Vision (ACCV) 2016
- IEEE VR 2018
- ACM Transactions on Graphics
- IEEE Transactions on Visualization and Computer Graphics
- IEEE Computer Graphics and Applications
- Computer Graphics Forum (Wiley Blackwell)
- Computers & Graphics (Elsevier)
- The Visual Computer (Springer)
- Signal, Image and Video Processing (Springer)
- Journal of Computer Science and Technology (Springer)
- Journal of Electronic Imaging
- Journal of Computer Graphics Techniques

Grant reviewer

- Natural Sciences and Engineering Research Council of Canada (NSERC)

AWARDS **Microsoft Research Asia Fellowship**, 2010

FILM CREDITS **The Hobbit: The Battle of the Five Armies** (Weta Digital, Visual Effects), 2014

GAME CREDITS    **Skylanders Battlecast** (Activision), 2016  
                  **Call of Duty: Infinite Warfare** (Activision), 2016  
                  **Call of Duty: Modern Warfare Remastered** (Activision), 2016  
                  **Call of Duty: WWII** (Activision), 2017

SELECTED MEDIA [22] **Generating Hair Strands From Single-View Input.** *80 level*  
REPORTS            [21] **3D Hair Synthesis Using Volumetric Variational Autoencoders.** *CGRecord*  
                  [20] **Snapchat Gains Augmented Reality ‘Sky Filters’ for Adding Virtual Weather Effects to Photos.** *MacRumors*  
                  [19] **How to Use Sky Filters on Snapchat for More Engaging Snaps.** *Mobile App Daily*  
                  [18] **Snapchat’s New AR Filters Will Change the Sky Above Your Head.** *PetaPixel*  
                  [17] **Snapchat update adds dramatic Sky Filters and new 3D Bitmoji Lenses.** *The Independent*  
                  [16] **Snapchat’s new Filters can transform the sky above your head.** *TechCrunch*  
                  [15] **Snapchat is celebrating its sixth birthday with ‘Sky Filters’ and more 3D Bitmoji Lenses.** *TNW*  
                  [14] **Activision’s Virtual Human ‘Emotion Challenge’.** *fxguide.com*  
                  [13] **Activision: A Photoreal Facial Performance Pipeline for Games.** *80 level*  
                  [12] **Geometric Detail Transfer.** *Two Minute Papers*  
                  [11] **Videos: the best of Siggraph 2015’s technical papers.** *cgchannel.com*  
                  [10] **Performance driven facial animation.** *fxguide.com*  
                  [9] **Oculus VR figures out how avatars can mimic your facial expressions.** *engadget.com*  
                  [8] **Oculus can map your real-life expressions onto your VR avatar.** *Wired*  
                  [7] **Sensors Bring You Face to Face with Your Virtual Reality Avatar.** *vice.com*  
                  [6] **Oculus Rift hack transfers your facial expressions onto your virtual avatar.** *Ars Technica*  
                  [5] **Oculus Rift Hack Transfers Your Facial Expressions onto Your Avatar.** *MIT Tech. Review*  
                  [4] **Oculus Rift teams with researchers to produce ability to capture and display facial expressions.** *TechXplore.com*  
                  [3] **Martin Breidt on the Uncanny Valley & Facial Tracking within a VR Head-Mounted Display by Oculus Research.** *Voices of VR Podcast*  
                  [2] **L’Oculus Rift reproduit maintenant les expressions faciales.** *Le Monde* (in French)  
                  [1] **Malen mit Zahlen.** *c’t* 19/2011 (in German)

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