

# Chongyang Ma

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CONTACT INFORMATION	Kuaishou Technology 3000 El Camino Real BLDG 5-220 Palo Alto, CA 94306, 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, human digitization, motion capture, face tracking, 3D understanding & reconstruction, physics-based simulation, data-driven animation, procedural modeling, digital geometry processing, and 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></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>Tsinghua High School</b> , Beijing, China	
	National Honored Science Class,	Sep 2001 to Aug 2004
WORK EXPERIENCE	<b>Kuaishou Technology</b> , U.S.A. <ul style="list-style-type: none"><li>• Research Lead/Manager</li></ul> Mar 2019 to present	
	<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 Feb 2019 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	

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- [47] Jiafeng Liu\*, Haoyang Shi\*, Siyuan Zhang, Yin Yang, **Chongyang Ma**, Weiwei Xu. 2022. “Automatic Quantization for Physics-Based Simulation”. *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2022)*, Vol 41, Issue 4, 51:1–51:16.
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- [38] Minxuan Lin, Fan Tang, Weiming Dong, Xiao Li, Changsheng Xu, **Chongyang Ma**. 2021. “Distribution Aligned Multimodal and Multi-Domain Image Stylization”. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, Vol 17, Issue 3, 96:1-96:17.
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- [33] Tian Chen\*, Shijie An\*, Yuan Zhang, **Chongyang Ma**, Huayan Wang, Xiaoyan Guo, Wen Zheng. 2020. “Improving Monocular Depth Estimation by Leveraging Structural Awareness and Complementary Datasets”. Proceedings of the 16th European Conference on Computer Vision (ECCV), 90–108.
- [32] Xingjia Pan, Yuqiang Ren, Kekai Sheng, Weiming Dong, Haolei Yuan, Xiaowei Guo, **Chongyang Ma**, Changsheng Xu. 2020. “Dynamic Refinement Network for Oriented and Densely Packed Object Detection”. Proceedings of the 33rd IEEE International Conference on Computer Vision and Pattern Recognition (CVPR, **Oral Presentation**), 11207–11216.
- [31] Zaiwei Zhang, Zhenpei Yang, **Chongyang Ma**, Linjie Luo, Alexander Huth, Etienne Vouga, Qixing Huang. 2020. “Deep Generative Modeling for Scene Synthesis via Hybrid Representations”. ACM Transactions on Graphics (TOG, presented at SIGGRAPH 2020), Vol 39, Issue 2, 17:1–17:21.
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- [29] Fan Tang, Weiming Dong, Yiping Meng, **Chongyang Ma**, Fuzhang Wu, Xinrui Li, Tong-Yee Lee. 2020. “Image Retargetability”. IEEE Transactions on Multimedia (TMM), Vol 22, Issue 3, 641–654.
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- [25] Ryota Natsume\*, Shunsuke Saito\*, Zeng Huang, Weikai Chen, **Chongyang Ma**, Hao Li, Shigeo Morishima. 2019. “SiCloPe: Silhouette-Based Clothed People”. Proceedings of the 32nd IEEE International Conference on Computer Vision and Pattern Recognition (CVPR, **Oral Presentation, Best Paper Award Finalist**), 4480–4490.
- [24] Seonghyeon Nam, **Chongyang Ma**, Menglei Chai, William Brendel, Ning Xu, Seon Joo Kim. 2019. “End-to-End Time-Lapse Video Synthesis from a Single Outdoor

- Image”. Proceedings of the 32nd IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 1409–1418.
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- [22] Shunsuke Saito, Liwen Hu, **Chongyang Ma**, Hikaru Ibayashi, Linjie Luo, 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.
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- [20] Zeng Huang, Tianye Li, Weikai Chen, Yajie Zhao, Jun Xing, Chloe LeGendre, Linjie Luo, **Chongyang Ma**, 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.
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- [18] Jonathan Palacios, Lawrence Roy, Prashant Kumar, Chen-Yuan Hsu, Weikai Chen, **Chongyang Ma**, Li-Yi Wei, 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, 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, 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, Oliver Deussen. 2017. “Data-Driven Synthesis of Cartoon Faces Using Different Styles”. IEEE Transactions on Image Processing (TIP), Vol 26, Issue 1, 464–478.
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- [10] Hao Li, Laura Trutoiu, Kyle Olszewski, Lingyu Wei, Tristan Trutna, Pei-Lun Hsieh, Aaron Nicholls, **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, 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.
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DISSERTATION

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

PATENTS

- [12] **Chongyang Ma**, Zhenyang Liu. “Method and Electronic Device for Processing Images”. US Patent 17/172,873 filed on Feb 10, 2021.
- [11] Kun Duan, Nan Hu, Linjie Luo, **Chongyang Ma**, Guohui Wang. “Real-Time Bokeh Effect”. US Patent 11,087,513 granted on Aug 10, 2021.
- [10] Shijie An, Yuan Zhang, **Chongyang Ma**. “Method, Device and Non-Transitory Computer Storage Medium for Processing Image”. US Patent 16/906,777 filed on June, 19, 2020.
- [9] Linjie Luo, **Chongyang Ma**, Zehao Xue. “Scaled Perspective Zoom on Resource Constrained Devices”. US Patent 10,757,319 granted on Aug 25, 2020.

- [8] **Chongyang Ma**, Kun Duan, Xing Mei, Nan Hu. “Systems, Devices, and Methods for Image Enhancement”. US Patent 10,742,899 granted on Aug 11, 2020.
- [7] Kun Duan, Daniel Ron, **Chongyang Ma**, Ning Xu, Shenlong Wang, Sumant Hanumante, Dhritiman Sagar. “Active Image Depth Prediction”. US Patent 10,672,136 granted on Jun 2, 2020.
- [6] Wan-Chun Ma, **Chongyang Ma**. “Systems and Methods for Automating the Animation of Blendshape Rigs”. US Patent 10,586,380 granted on Mar 10, 2020.
- [5] Wan-Chun Ma, **Chongyang Ma**. “Systems and Methods for Automating the Personalization of Blendshape Rigs Based on Performance Capture Data”. US Patent 10,573,065 granted on Feb 25, 2020.
- [4] **Chongyang Ma**, Xing Mei, Nan Hu, Kirk Ouimet. “Synthesizing Cloud Stickers”. US Patent 10,565,743 granted on Feb 18, 2020.
- [3] Nan Hu, Xing Mei, **Chongyang Ma**, Kun Duan. “Annotating an Image with a Texture Fill”. US Patent 10,430,987 granted on Oct 1, 2019.
- [2] Li-Yi Wei, **Chongyang Ma**, Xin Tong. “Discrete Element Texture Synthesis”. US Patent 8,698,829 granted on Apr 15, 2014.
- [1] Li-Yi Wei, **Chongyang Ma**, Baining Guo, Kun Zhou. “Motion Field Texture Synthesis”. US Patent 12/503,162, filed on 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

STUDENT SUPERVISION

**Kuaishou Technology**, Y-tech

Yiqin Zhao, research intern	Jan 2022 to Apr 2022
Jiafeng Liu, research intern	Sep 2021 to present
Yuan Yao, research intern	Jun 2021 to Mar 2022
Siming Yan, summer research intern	Jun 2020 to Sep 2020
Haitao Yang, summer research intern	May 2020 to Aug 2020
Pengda Xiang, summer research intern	May 2020 to Aug 2020
Yuliang Xiu, summer research intern	May 2020 to Aug 2020
Jinghui Li, R&D intern	Feb 2020 to Nov 2020
Hang Jin, R&D intern	Feb 2020 to Aug 2020

**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

PROFESSIONAL  
ACTIVITIES

Industrial Editorial Board

- APSIPA Trans. on Information and Signal Processing (ATSIP) 2022–present

Program committee

- Shape Modeling International (SMI) 2018–2022
- Computer Animation and Social Agents (CASA) 2017–2022
- ACM SIGGRAPH Asia Technical Briefs and Posters 2019
- 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

- Neural Information Processing Systems (NeurIPS) 2020, 2021
- European Conference on Computer Vision (ECCV) 2020, 2022
- AAAI Conference on Artificial Intelligence (AAAI) 2020–2022
- IEEE International Conference on Computer Vision (ICCV) 2019, 2021
- IEEE International Conference on Multimedia and Expo (ICME) 2019
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019–2022
- ACM SIGGRAPH 2013–2020, 2022
- ACM SIGGRAPH Asia 2013–2019, 2021, 2022
- Eurographics 2010, 2013–2018, 2020
- Pacific Graphics 2011, 2013, 2014, 2018
- Computer Graphics International (CGI) 2012
- CAD/Graphics 2013
- Asian Conference on Computer Vision (ACCV) 2016
- IEEE VR 2018
- ACM Transactions on Graphics
- IEEE Transactions on Image Processing
- IEEE Transactions on Visualization and Computer Graphics
- IEEE Computer Graphics and Applications
- Computer Graphics Forum (Wiley Blackwell)
- Computers & Graphics (Elsevier)
- Visual Informatics (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

**Call of Duty: WWII** (Activision), 2017

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

- SELECTED MEDIA REPORTS
- [23] **AI-Based Hair Synthesis... From Just One Photo!**. *Two Minute Papers*
  - [22] **Generating Hair Strands From Single-View Input**. *80 level*
  - [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*
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  - [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*
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  - [1] **Malen mit Zahlen**. *c’t* 19/2011 (in German)

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