

CHI-HAN PENG

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I am a research scientist at the Visual Computing Center at King Abdullah University of Science and Technology (KAUST), working with Prof. Peter Wonka.

I was a postdoctoral research associate at University College London (UCL), working with Prof. Niloy Mitra. I worked at Nogle, a private company based in Taipei, on the 3D modelling and simulation of real-world clothes for the fashion / garment industries.

I received PhD in Computer Science at Arizona State University. My thesis, Connectivity Control for Quad-Dominant Meshes, was supervised by Prof. Peter Wonka. My research interests include polygonal mesh processing, geometric modelling, and urban design. During my PhD studies, I also took summer intern at Adobe ATL (supervised by Dr. Nathan Carr and Radomir Mech) and visited KAUST, Saudi Arabia, and TU Vienna, Austria, for research collaborations.

Prior to my PhD study, I received my B.S. and M.S. in Computer Science at National Chiao Tung University (NCTU), Taiwan. I worked at CyberLink, the maker of PowerDVD video players, as a software engineer for four years. I was also the co-founder of an online taxi carpooling service serving the Taipei metropolitan area.

EDUCATION

Arizona State University, USA

2010-2014 **Ph.D. Computer Science / GPA: 4.00** (University Graduate Fellowship Award - summer 2014)

National Chiao Tung University, Taiwan

2003-2005 **M.S. Computer Science / GPA: 3.83 / Thesis:** User-Assisted Mesh Simplification

1999-2003 **B.S. Computer Science / GPA: 3.78** (Ranked 3rd among 56. Won academic achievement award twice.)

PUBLICATIONS

- 2018 **Designing Patterns using Triangle-Quad Hybrid Meshes**, Chi-Han Peng, Helmut Pottmann, and Peter Wonka, ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH), 2018.
- 2016 **Computational Network Design from Functional Specifications**, Chi-Han Peng, Yong-Liang Yang, Fan Bao, Daniel Fink, Dong-Ming Yan, Peter Wonka, and Niloy J. Mitra, ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH), 2016.
- 2014 **Computing Layouts with Deformable Templates**, Chi-Han Peng, Yong-Liang Yang, and Peter Wonka, ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH), 2014.
- 2014 **Exploring Quadrangulations**, Chi-Han Peng, Michael Barton, Caigui Jiang, and Peter Wonka, ACM Transactions on Graphics (to be presented at SIGGRAPH 2014).
- 2013 **Connectivity Editing for Quad-Dominant Meshes**, Chi-Han Peng and Peter Wonka, Eurographics Symposium on Geometry Processing (SGP) 2013.
- 2011 **Connectivity Editing for Quadrilateral Meshes**, Chi-Han Peng, Eugene Zhang, Yoshihiro Kobayashi, and Peter Wonka, ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH ASIA), 2011.

MISC. PUBLICATIONS

- 2018 **PanoAnnotator: A Semi-Automatic Tool for Indoor Panorama Layout Annotation**, Shang-Ta Yang, Chi-Han Peng, Peter Wonka, Hung-Kuo Chu, Siggraph Asia 2018 Posters.
- 2014 **Connectivity Control for Quad-Dominant Meshes with Applications in Urban Design**, Chi-Han Peng, Advances in Architectural Geometry (AAG) 2014, Poster.
- 2011 **Feature Detection in Aerial Images**, Cheng Pan, Yifan Zhang, and Chi-Han Peng, SIAM Data Mining Conference (SDM) 2011, Doctoral Forum. Advisors: John Femiani, Anshuman Razdan, Peter Wonka.
- 2006 **User-Assisted Mesh Simplification**, Tan-Chi Ho, Yi-Chun Lin, Jung-Hong Chuang, Chi-Han Peng, and Yu-Jung Cheng, ACM Virtual Reality Continuum and Its Applications (VRCIA) 2006.
- U.S. Patent:**
Nov 6, 2006 **System and method for implementing remote control functions in a mouse in a video playback system**, Yi-Chao Tsai, Fu-Kai Juang, and Chi-Han Peng, Publication Number: US 2008/0022219 A1. In this patent we propose UI design about using mouse gestures to control video players that do not natively support mouse controls, such as HDDVD and Blu-ray players.

TEACHING EXPERIENCE

Siggraph Asia 2018

- 2018 Lecturer, Siggraph Asia 2018 Courses
I will participate in a course at Siggraph Asia 2018, titled "Integer Programming for Visual Computing", hosted by Prof. Peter Wonka.

KAUST

- 2018 Fall Teaching Assistant, CS248 Computer Graphics
I am the TA for a Computer Graphics course for Master/PhD level students.

Arizona State University

- 2003 Spring Guest Lecturer, CPI411 Graphics for Games, Prof. Yalin Wang
I gave a guest lecture about real-time rendering and shader programming using the Microsoft XNA 3.x framework.

ACADEMIC SERVICE

Academic Paper Reviewer:

Siggraph / Siggraph Asia,
Computer Graphics Forum / Eurographics / Pacific Graphics,
European Journal of Operational Research,
Automation in Construction,
Computer-Aided Design.

Industry Technical Reviewer:

2007 **Programming HD DVD and Blu-ray Disc**, ISBN: 9780071496704.
I reviewed several chapters about authoring HDDVD Advanced Content.

WORK EXPERIENCE

KAUST

2017-present **Research Scientist**. Visual Computing Center.

Nogle, Taiwan

2016-2017 **Software Engineer**. 3D modeling and simulation for real-world clothes.

University College London (UCL), UK

2015-2016 **Postdoctoral research associate**. Working for Prof. Niloy Mitra, Dept. of Computer Science, UCL.

Vienna University of Technology (TU Wien), Austria

2013 **Visitor**. I visited the computer graphics group at TU Wien (hosted by Prof. Michael Wimmer) during the 2013 summer for research collaborations.

Adobe Advanced Technology Lab (ATL), San Jose, CA

2012 Summer **Research intern** advised by Dr. Nathan Carr and Radomir Mech.

King Abdullah University of Science and Technology (KAUST), Saudi Arabia

2011, 2012 **Visitor**. I visited GMSV, KAUST during the 2011 and 2012 winter breaks for research collaborations.

Peace Network Co., Ltd. (www.mytaxi.tw)

2009-2010 **Co-Founder**. My wife and I co-founded an online taxi carpooling service targeting commuters in Taipei. The taxi drivers are provided by a local taxi fleet. I collaborated with a website design house to build the website using PHP framework Codeigniter and MySQL.

CyberLink Corp.

2007-2010 **Senior Engineer**. In addition to HDDVD players, I was also in charge of the OEM customization of the navigator, content protection (BD+), and video protection protocols (COPP/OPM) of our Blu-ray software, which accumulated to more than 200,000 lines of codes. I also integrated the anti-reverse engineering technologies, such as AACS and code obfuscation, into our video playback software.

2006-2007 **Engineer**. I improved the quality of the navigator and scripting engine (HDi) components of our HDDVD software to shipping quality. I shipped components to OEM customers such as HP, Dell, Asus, and Acer.

National Center for High-Performance Computing (NCHC)

2002-2004 **Undergraduate Research Assistant**. I developed several programs for the visualization department, including a web-based remote stereo-image display system using Java3D.

TECHNICAL SKILLS

Proficient programming languages: **C/C++, Java, C#, PHP**

I am professional in C/C++ programming (at CyberLink we code in C/C++ with heavy use of Microsoft .NET and COM technologies). I have extensive experience coding Java during my job at NCHC and several undergraduate course projects. I have coded in C# for utilizing the XNA framework for GPU programming. My expertise of PHP programming is acquired during my entrepreneurial experience at www.mytaxi.tw.

GPU programming: **XNA, GLSL, Cg, CUDA**

I did a very good job (A+) for the course “Graphics for Games” at ASU, which covers several advanced topics of GPU programming such as environment mapping, shadow mapping and GPU-based particle system. The projects are developed in XNA framework.

Tools: **Visual Studio, CGAL, .NET, 3ds Max, Unity 3D, Maya, MATLAB, Gurobi, Mathematica, Photoshop, Flash**

My expertise can be categorized as: (1) Programming, such as Visual Studio and .NET. (2) 3D tools, such as CGAL mesh library, 3ds Max and Unity 3D. (3) Scientific computing / optimization tools, such as MATLAB, Gurobi, and Mathematica. (4) Website development, such as Photoshop and Flash.

I am experienced with UNIX-like systems.

I can speak English and Chinese (mother tongue).

REFERENCES

Prof. Dr. Helmut Pottmann

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Prof. Dr. Peter Wonka

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Prof. Dr. Eugene Zhang

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Prof. Dr. Yalin Wang

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