Hongwei Li

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Education

Aug. 2006 - Aug. 2010
PhD, Computer Science and Engineering, Hong Kong University of Sci. and Tech. (HKUST), Hong Kong
- Advisors: Dr. Pedro V. Sander and Dr. Chi-Wing Fu.
- Area of study: Computer Graphics.
- GGA : 9.93 (A-).

Sep.2004 – June 2006
Master, Computer Science and Engineering, Zhejiang University, P. R. China
- Advisor: Prof. Sanyuan Zhang and Prof. Xiuzi Ye
- Area of study: Computer-Aided Design.

Sep. 2000 - June 2004
B.E., Computer Science and Engineering, Zhejiang University, P. R. China
- Mixed class, Chu Kochen Honors College.
- Overall GPA 3.69/4.00, Major GPA 3.88/4.00, Top 5%.

Work Experience

June. 2021– Now
Technical Expert, Tencent
- Built a cloud rendering engine from scratch; established the development schema and built a 10+ people team from ground. The rendering engine contains a number of edge cutting techniques, like GPU-driven cluster based pipeline, the virtual shadow map, a node based material system, an authoring workflow based on Blender and such
- Build a cloud gaming runtime which accelerates the mobile game performance on cloud streaming. This runtime stays between game app and GLES/Vulkan, and alter the upstream gfx APIs for the best performance.
- An AIGC project which accelerates the gaming dev, including concept arts generation, model database and search, scene composition and such.
- Start moving from graphics to AI slowly by reading tons of papers and playing with opensource diffusion and llm projects.

June. 2019– June 2021
Technical Expert, Huawei
- The chief architect of Huawei Phoenix Graphics Engine, the author of Huawei software ray tracing core solution, and proposed several rendering techniques which are used in Huawei HMS graphics acceleration solution kit.
- Wrote a middleware called es2vk which transcodes GLES to Vulkan API at runtime and kicked in some multi-threading tricks to make GLES run super fast.

Dec. 2016– June 2019
CTO, Modelo, Inc
- First engineer of the company. I built the Modelo core technology from ground with solo hand and was the main contributor to the entire code base of company products.

Feb. 2015 – Dec. 2016
Senior GPU Architect, Graphics Hardware Team, Nvidia Shanghai
- Worked on GPU graphics units frontend design in GPU hardware design team. The work include several features in current generation of Nvidia GPU, i.e., Volta.

Apri. 2013 – Feb. 2015
Member of Technical Staff, Graphics Technology Initiatives, Advanced Micro Devices(Shanghai)Co. Ltd
- Research general graphics rendering high performance computing and problems.
- Marketing technical support; back up marketing and sales team in business negotiation and marketing actions

Apri. 2012 – May 2013
Manager, Rightware Oy, Shanghai, China
- Project management; oversee customer project work flow from requirement collection to final delivery and quality guarantee.
- Technical pre-sales for Kanzi products; worked closely with VP of sales in customer contact; built relationship with domestic major players, e.g., Lenovo, Gionee, Desay and etc.
- Lead engineer who is the architect and reviewer of all China projects.

Apri. 2011 – March 2012
Senior Engineer, AMD Design and Research Center, Shanghai, China
- OpenGL driver development (Windows and Linux)
- First runner-up in AMD internal OpenCL contest.
- OpenGL training session lecturer.

Sep. 2010 – April 2011
Postdoc (joint project), Department of Electrical & Computer Engineering, NUS, Singapore
Visiting Scholar, Internet Graphics Group, Microsoft Research Asia (MSRA), Beijing, China
- A new approach for efficient Bidirectional texture function (BTF) acquisition (A joint project with MSRA).

Publications

Dongsoo Han and **Hongwei Li** , *Grass rendering and simulation with LOD*. GPU Pro 6, A K Peters, 2015

Zengzhi Fan, **Hongwei Li**, Karl Hillesland and Bin Shen, *Simualte and Render Millions of Grass Blades,* ACM SIGGRAPH Interactive 3D Graphics and Games (I3D), 2015

Hongwei Li, Li-Yi Wei, Pedro V. Sander and Chi-Wing Fu. A*nisotropic blue noise sampling*. To appear at ACM Transactions on Graphics (TOG), (ACM SIGGRAPH Asia 2010), Dec 2010

Hongwei Li, Diego Nehab, Li-Yi Wei, Pedro V. Sander and Chi-Wing Fu. *Fast Capacity Constrained Voronoi Tessellation*. Poster, ACM The ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D), Feb.2010

Kui-Yip Lo, Chi-Wing Fu and **Hongwei Li**. *3D Polyomino Puzzle*. ACM Transactions on Graphics (TOG), (ACM SIGGRAPH Asia 2009), Vol.28, no. 5, 2009

Hongwei Li, Li-Yi Wei, Pedro V. Sander and Chi-Wing Fu. *Anisotropic Poisson disk sampling*. HKUST Report, HKUST-CS-09-02, April 2009

Hongwei Li, Chi-Wing Fu and Andrew J. Hanson. *Visualizing Multiwavelength Astrophysical Data*. In IEEE Transactions on Visualization and Computer Graphics (TVCG), (Proceedings of IEEE Visualization 2008), vol.14, No.6, pp. 1555-1562, Nov 2008

Hongwei Li, Kui-Yip Lo, Chi-Wing Fu, and Mang-Kang Lenung. *Dual Poisson-Disk Tiling: An Ecient Method for Distributing Features on Arbitrary Surfaces*. In IEEE Transactions on Visualization and Computer Graphics (TVCG), Vol 14, No.5, pp. 982-998, 2008

Hongwei Li, Chi-Wing Fu, Yinggang Li, and Andrew J. Hanson. *Visualizing Large-Scale Uncertainty in Astrophysical Data*, In IEEE Transactions on Visualization and Computer Graphics (TVCG), (Proceedings of IEEE Visualization 2007), Vol.13, No.6, pp.1640-1647, Nov, 2007

Kui-Yip Lo, **Hongwei Li**, Chi-Wing Fu, and Tien-Tsin Wong. *Interactive Reaction-Diusion on Surface Tiles*. In Pacific Graphics 2007, oral paper, Maul, Hawaii, pp. 65-74, Nov. 2007.

Services

2009,2011, 2012, 2013

Reviewer

- GMOD 2013.
- IEEE Pacific Graphics 2012.
- ACM SIGGRAPH 2012.
- IEEE Visualization 2009.
- ACM SIGGRAPH 2011.

Awards

- Zhejiang University, Second-class Scholarship, Oct 2003
- Zhejiang University, "Three Goods" Student, Oct 2003
- Zhejiang University, Third-class Scholarship, Dec 2002
- Zhejiang University, Scholarship for Freshman, Dec 2000

Portfolio (Project demo)

Watch online http://v.youku.com/v_show/id_XMjQwNzg0NDUy.html (old)