

# Xinmin Fang

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| EDUCATION           | <b>University of Colorado Denver</b><br>PhD. in Computer Science and Information Systems<br><b>Guangdong University of Technology</b><br>B.S in Internet of Things   | Fall 2024 – Present<br><br>Fall 2020 – 2024 |
| EXPERIENCE          | <b>Researcher</b> , Mobile, Emerging Technologies & Applications (META) Lab<br>University of Colorado Denver<br>Supervised by Prof. Zhengxiong Li  | Sep. 2021 – Present                         |
| COMMERCIAL PRODUCTS | <b>Unity - Steam Networking Framework (Unity, C#)</b><br>One of the first few solutions of Steam multiplayer networking for Unity Engine. It was developed entirely by me solely. It is a low-level networking framework to connect Unity Component System and Steam P2P network services. It is used by commercial games such us <b>RUSSIA BATTLEGROUNDS</b> , a battle royale game that supports up to 32 players at the same time.  | 2017  |
| PUBLICATIONS        | <p>[1] *Xingyu Chen, *<b>Xinmin Fang</b>, Shuting Zhang, Xinyu Zhang, Liang He, Zhengxiong Li. "You Only Render Once: Towards Energy-saving and Efficient Mobile Virtual Reality", In: <i>ACM International Conference on Mobile Systems, Applications, and Services (MobiSys'24)</i> (*Co-first author) <b>(Conference full paper, Under review)</b></p> <ul style="list-style-type: none"><li>• Collaborated in performing initial technical validation and system development for the paper, demonstrating a keen understanding of the research domain.</li><li>• Developed and implemented algorithms and iterative system enhancements, driving continuous improvement initiatives for the system. Demonstrated a proactive approach to identifying opportunities for refinement and successfully implemented strategic enhancements to optimize overall system performance.</li><li>• Executed a substantial segment of the paper's evaluation, overseeing System Performance Evaluation, Real-world Evaluation, and User Study, showcasing hands-on expertise in diverse research methodologies.</li><li>• Contributed substantively to the written content, particularly in the System Overview, Evaluation, User Study, and Related Work sections, showcasing proficiency in contributing to the overall coherence and clarity of the manuscript.</li><li>• Generated a significant portion of the visual representations, including charts and graphs, enhancing the clarity and impact of the paper's findings.</li></ul> <p>[2] Xingyu Chen, Xingyu Zhang, Qiyue Xia, <b>Xinmin Fang</b>, Chris Xiaoxuan Lu, Zhengxiong Li. "<i>DiffSBR</i>: Differentiable Radio Frequency Ray Tracing for Millimeter-Wave Sensing", In: <i>Arxiv</i> (<a href="https://arxiv.org/abs/2311.13182">https://arxiv.org/abs/2311.13182</a>) <b>(Conference full paper)</b></p> <ul style="list-style-type: none"><li>• Engaged in the design process by developing a portion of the system design, demonstrating a strong grasp of theoretical frameworks and practical implementation.</li><li>• Took charge of drafting a portion of the paper, including the Evaluation and Related Work sections, showcasing proficiency in synthesizing complex information and effectively communicating key findings.</li><li>• Actively contributed to the creation of specific graphs that enhanced the clarity and comprehensibility of the paper.</li></ul> <p>[3] *<b>Xinmin Fang</b>, *Xingyu Chen, Wenyao Xu, Zhengxiong Li. "Poster: Enhanced Virtual Reality: Exploring an Immersive and Realistic Virtual Reality Training for Nursing", In: <i>ACM Conference</i></p> |   |

on *Embedded Networked Sensor Systems (SenSys'21)* (\*Co-first author) **(Poster)**

- Successfully developed the comprehensive system and evaluation of the poster, demonstrating proficiency in system design and a keen ability to assess and refine visual materials for optimal impact.
- Authored the entirety of the poster content, showcasing exceptional writing skills and a meticulous approach to conveying complex information in a clear and engaging manner.

[4] Xingyu Chen, **Xinmin Fang**, Wenchuan Wei, Wenyao Xu, Zhengxiong Li. "Poster: Exploring an Extensible Children Game Framework based on Augmented Reality Building Blocks", In: *ACM Conference on Embedded Networked Sensor Systems (SenSys'21)* **(Poster)**

- Collaborated in crafting a portion of the poster content, actively contributing to the development of cohesive and compelling written material.

NOTABLE  
PROJECTS

**Firefly Renderer (C#)**

2018

It is a basic rasterizer running on CPU for research and study use.

- Accomplished the implementation of a comprehensive rasterization pipeline.
- Developed a Shader framework enabling the creation of various effects through the customization of Shaders, allowing for real-time debugging.
- Dynamically loaded scenes, materials, and Shaders to enhance flexibility and adaptability.

**Firefly Renderer (C++, CUDA)**

2018

It is a basic rasterizer running on GPU for research and study use.

**Butterfly Language (C#, C++)**

2018

It is a basic programming language with compiler and interpreter.

- Possess comprehensive proficiency in fundamental syntax and object-oriented features.
- Executed both frontend and backend development, encompassing syntax analysis, semantic analysis, and the generation of target bytecode.
- Developed a bytecode interpreter in C++, achieving a runtime speed of approximately 30% faster than Python.