

# Bingxuan Li

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## EDUCATION

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**School of Electronics Engineering and Computer Science (EECS), Peking University** Beijing, China

**Bachelor of Science in Computer Science** Aug. 2020 - Present

*Turing Class* - supervised by Prof. John Hopcroft; 35 students selected from all 2,894 students entering in 2020

**Major GPA:** 90.5/100      **Ranking:** Top 10%

**Core Courses:** Advanced Algebra (92.5) / Introduction to Visual Computing (93) / Introduction to Computer Systems (93) / Computer Architecture (92) / Introduction to Parallel Computing (92) / Frontier Computing Research Practice (93)

## RESEARCH EXPERIENCES

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**#Research in Rendering** Jun. 2023 - Sept. 2023

**Topic: Explore ROMA's further applications in rendering**

Advisor: Prof. Lingqi Yan, UC Santa Barbara

- Implemented ROMA(Ray-aligned Occupancy Map, a new method to accelerate ray tracing) on Mitsuba 0.6 and optimized its performance on CPU.
- Implemented various prevalent rendering algorithms, such as PT, NEE, BDPT, and LVC-BPT, independently within Mitsuba 0.6, and employed ROMA for their acceleration.

**#Research in Rendering** Sept. 2022 - Present

**Topic: Optimize reciprocal estimation process and its usage in rendering**

Advisor: Prof. Sheng Li, Peking University

- Put forward an efficient novel approach for reciprocal estimation, which is about using the Monte Carlo Method to estimate the reciprocal of a function's integral value.
- With our optimized reciprocal estimation process, we introduced a novel approach to address caustic paths in bidirectional path tracing and probabilistic connecting methods, leading to notable enhancements.
- We currently have a paper **under submission**.

**# Research in Animation** Jul. 2022 - Aug. 2022

**Topic: Neural reconstruction of dynamic human bodies**

Advisor: Prof. Libin Liu and Prof. Baoquan Chen, Visual Computing and Learning Center, Peking University.

- Read 10+ papers on the research topic, systematically learned NeRF and related technologies. Implemented state-of-the-art algorithms and get familiar with PyTorch in this process.
- Ran several experiments to evaluate the performance of prevailing methods and proposed new ideas to improve them.

## PUBLICATION

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Fujia Su\*, **Bingxuan Li\*** et al, *Proxy Tracing: Bidirectional Path Connections using Unbiased Reciprocal Estimation for Difficult Paths*, to be submitted.

## AWARDS

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- John Hopcroft Scholarship (Top 15 in Turing Class) Nov. 2023
- John Hopcroft Scholarship Nov. 2021
- Scholarship of Freshman, Peking University (Top 10% students in Peking University) Sept. 2020
- Silver Metal, Chinese Chemistry Olympiad (Top 200 in China) Nov. 2018

## SKILLS

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- Programming Languages: C/C++, Python
- Software: Mitsuba 0.6, OptiX 7, OpenGL, PyTorch
- Research Tools: LaTeX, Adobe Products (Photoshop, Illustrator, Premiere, etc)
- Standard English Tests: TOEFL 106 (R29, L29, S22, W26)    GRE 322 (V154, Q168, AW3.0)