

David Li

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EDUCATION

University of Maryland, College Park

Ph.D. Student in Computer Science (GPA: 3.9)

Aug. 2019 - Present

B.S. in Computer Science and Mathematics (Magna Cum Laude)

Aug. 2015 - Dec. 2018

EXPERIENCE

UMD Graphics and Visual Informatics Laboratory

Apr. 2019 - Present

Graduate Research Assistant

- Led a group of three students and developed a foveated video streaming pipeline in C++ which optimizes video streaming by transmitting a reduced-resolution video that gets upscaled on the client.
- Collaborated with a Googler (ruofei@) to draft a 10-page research paper on foveated 360 video streaming.
- Designed and developed MeteoVis, an interactive virtual reality weather visualization system to aid in interpreting weather events such as atmospheric rivers based on water vapor, air pressure, wind, and cloud height data from GOES and MIRS satellites. The system is written in HLSL (C on the GPU) and Unity C#.

Google

May 2020 - Aug. 2020

Research Intern

- Designed a deep learning based view synthesis pipeline for interpolating between sparse 360 panoramas.
- Collected simulated RGB, depth, and pose data from the CARLA self-driving car simulator.
- Programmed the above pipelines in Python using Tensorflow.
- Implemented a gesture demo for controlling two virtual lamps based on 6DoF AR phone pose using JavaScript.

UMD Graphics and Visual Informatics Laboratory

May 2018 - Dec. 2018

Undergraduate Research Assistant

- Co-developed Geollery, a mixed reality social media platform featuring real-time user interaction.
- Developed real-time 3D reconstruction pipelines with two levels of details from Google Street View, OpenStreetMaps, and Google Maps.
- Incorporated Twitter and Yelp APIs to visualize geotagged social media.
- Wrote GLSL, JavaScript, MySQL, and PHP code using three.js for 3D development and Ratchet for WebSockets in PHP.

UMD Department of Mathematics

Sep. 2017 - Dec. 2017

Grader for MATH410 Advanced Calculus I

- Assessed and provided feedback on mathematical proofs from homeworks and quizzes.

UMD First-Year Innovation & Research Experience

Jan. 2017 - May 2017

Academic Peer Mentor for FIRE170 Phillips Virtual Culture

- Mentored FIRE students.

UMD First-Year Innovation & Research Experience

Jan. 2016 - Dec. 2016

FIRE Student and Summer Fellow in Sustainability Analytics

- Analyzed FAO and IUCN Red List data sets using R and summarized research insights.

PUBLICATIONS

David Li, Ruofei Du, Adharsh Babu, Camelia Brumar, and Amitabh Varshney (2021). A Log-Rectilinear Transformation for Foveated 360-degree Video Streaming. In 2021 IEEE Transactions on Visualization and Computer Graphics (TVCG) Special Issue on the 2021 IEEE VR Conference.

David Li, Eric Lee, Elijah Schwelling, Mason Quick, Patrick Meyers, Ruofei Du, and Amitabh Varshney. *MeteoVis: Visualizing Meteorological Events in Virtual Environments*. In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems.

Ruofei Du*, **David Li***, and Amitabh Varshney. Project Geollery.com: Reconstructing A Live Mirrored World With Geotagged Social Media. In Proceedings of the 24th International Conference on Web3D Technology. (*: with equal contributions)

Ruofei Du, **David Li**, and Amitabh Varshney. Geollery: A Mixed Reality Social Media Platform. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems.

Ruofei Du, **David Li**, and Amitabh Varshney. Experiencing a Mirrored World With Geotagged Social Media in Geollery. In Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems.

Ruofei Du*, **David Li***, and Amitabh Varshney. Interactive Fusion of 360° Images for a Mirrored World. In 2019 IEEE Conference on Virtual Reality and 3D User Interfaces. (*: with equal contributions)

TECHNICAL SKILLS

Projects: <https://davidl.me/projects>, <https://github.com/dli7319>

Programming: C++, Unity C#, JavaScript/TypeScript, Python, GLSL, HLSL, OpenCL.

Frameworks: Unity, Laravel, Angular

CONFERENCES

CHI 2019

May 5-9, 2019

Author, Demonstrations

- Held a demo booth with Ruofei Du to demonstrate Geollery.com.

ACTIVITIES

Reviewing

- IEEE VR 2020, 2021
- ACM CHI EA 2020, 2021