

Yuguang Li

yuguang.lee1@gmail.com | (315) 897-7889 | Seattle (Open to relocate) | [Website / Research Portfolio](#) | [Patent Portfolio](#)

Technical Profile: Principal Applied Scientist and computer vision researcher specializing in multi-view 3D reconstruction, spatial intelligence, novel view synthesis, generative geometry, and production ML systems. Built production-scale indoor reconstruction systems at Zillow and developed feed-forward multi-view transformers and diffusion-based geometric optimization toward fully automated floor-plan reconstruction, alongside multi-view novel-view reconstruction from mobile video. Recent research includes first-author CVPR 2025 Highlight and NeurIPS 2026 work, building on a broader publication record across CVPR and ECCV. Affiliate Assistant Professor at the University of Washington and inventor on 30+ U.S. patents.

EXPERIENCE

Zillow Group, Principal Applied Scientist | Founding Scientist | Lead, New Product Initiative

Seattle, WA | 2026 – Present

- Founding scientist for a new mobile-capture initiative focused on structural 3D reconstruction and novel-view reconstruction from short iPhone walkthroughs, with multimodal indoor understanding as part of the broader product science roadmap. Own problem formulation, science roadmap, role definition, hiring bar and calibration for the scientists and MLEs.
- Building and training a LargeNVS-based feed-forward novel view synthesis pipeline for reconstructing high fidelity static views from mobile video captures, with ongoing enhancement using point-cloud conditioning to improve wider-FOV control, and occluded region prediction; exploring a 3D scene-completion pipeline combining 2D diffusion inpainting with AnySplat feed-forward Gaussian reconstruction to fill missing regions in partial mobile 3D scans.

University of Washington, PhD Researcher, Computer Vision and Artificial Intelligence

Seattle, WA | 2023 - 2026

Zillow-sponsored research arrangement; remained part-time Principal Applied Scientist at Zillow during the PhD.

- Returned to UW after a seven-year pause for a focused PhD in multi-view 3D vision and generative modeling, with broad academic research freedom and continued Zillow sponsorship.
- First-authored MvFFN (NeurIPS 2026 submission, scores 4/4/5), developing a 300M-parameter multi-view transformer for spatial reasoning across unposed wide-baseline views. Reformulated floor-plan reconstruction as an autoregressive-style multi-view prediction problem with globally consistent instance identities, enabling cross-view correspondence and consistent multi-room structure recovery. Introduced the ZInD-CrossView dataset, a multi-view training curriculum, and inductive biases for limited multi-view supervision.
- First-authored BADGR (CVPR 2025 Highlight), a diffusion model conditioned on bundle-adjustment gradients for joint camera-pose and structured-geometry refinement, integrating classical geometric optimization directly into a learned generative / geometry optimization process. Assembled FloorPlan-60K, a dataset of roughly 60K semantic floor plans, to train the diffusion model and provide large scale structural priors for floor plan geometry.

Zillow Group, Principal Applied Scientist | Founding Scientist, Indoor Reconstruction & [Zillow Showcase](#)

Seattle, WA | 2017 – 2023

- Originated the floor-plan-centric Showcase experience and led it from a first-place Hack Week concept to production. Defined the initial product and technical direction, built the first prototype, proved the reconstruction workflow through an annotation pilot, assembled the founding team, and drove leadership adoption. Scaled to 300,000+ homes per year.
- Architected and personally built the reconstruction platform behind it: camera-pose refinement, scale calibration, incremental room-geometry merging, structured floor-plan output, interactive correction, and the spatial representations connecting them. The same platform generated the structured data underlying ZInD (CVPR 2021), and was designed so geometric and learned components could evolve independently without rebuilding the product.
- Expanded the stack from geometry into learned vision, originating and directing work that junior researchers I mentored carried to first authorship: **PSMNet** (CVPR 2022) for multi-view room-layout reconstruction, **SALVe** (ECCV 2022) for semantic alignment verification across sparse panoramas, and **CoVisPose** (ECCV 2022) for DUS3R-like learned wide-baseline camera localization. Led CoVisPose from research to production and owned the broader ML automation roadmap across pose, layout, relocalization, and geometry, reducing floor-plan production time from roughly 50 minutes to 15, materially lowering annotation cost.
- Designed, implemented end-to-end, and patented the image-based rendering system for Showcase, using OpenGL/GLSL, reconstructed floor plan geometry, camera poses, panorama imagery, and predicted depth to create immersive transitions between sparse wide baseline panoramas without depth sensors or dense 3D reconstruction. Integrated the rendering pipeline into the production touring experience.

Adobe Creative Technology Labs, Researcher

Seattle, WA | Summer 2016

- Prototyped a high-performance cross-platform computational-photography pipeline using the Halide compiler; later adopted as a framework within Adobe imaging products including Photoshop and Lightroom.

ACADEMIC APPOINTMENTS

University of Washington, Affiliate Assistant Professor

Seattle, WA | Aug 2026 - Present

- Research collaboration and student mentorship in computer vision / AI, spatial understanding, novel view synthesis, and multi-view reconstructions.

PUBLICATIONS

15 total. Selected recent multi-view and 3D work listed; earlier remote-sensing and medical-imaging publications (ISPRS J. Photogrammetry, Remote Sensing of Environment $\times 2$, IGARSS, ICPRAM, SPIE $\times 2$) omitted for brevity.

1. **Y. Li**, Y. Deng, Z. Liu, X. Wu, X. Zou, L. Shapiro, A. Colburn. "MvFFN: Multi-view Floor-Plan Feed-Forward Network for Unposed Wide- Baseline Panorama Layout Reconstruction." *NeurIPS 2026 Submission*. Score 4 / 4 / 5. [Paper link](#).
2. **Y. Li**, I. Boyadzhiev, Z. Liu, L. Shapiro, A. Colburn. "BADGR: Bundle Adjustment Diffusion Conditioned by Gradients for Wide-Baseline Floor Plan Reconstruction." *CVPR 2025*. **Highlight**.
3. Y. Deng, Z. Liu, **Y. Li**, X. Wu, L. Shapiro. "Calibrating State Write Rates Across Update Horizons for Streaming 3D Reconstruction." *AAAI 2027 Submission*.
4. N. Nejatishahidin, W. Hutchcroft, M. Narayana, I. Boyadzhiev, **Y. Li**, et al. "Graph-CoVis: GNN-Based Multi-View Panorama Global Pose Estimation." *CVPR Workshop 2023*. **Best Workshop Paper**.
5. W. Hutchcroft, **Y. Li**, I. Boyadzhiev, Z. Wan, H. Wang, S. B. Kang. "CoVisPose: Co-visibility Pose Transformer for Wide-Baseline Relative Pose Estimation in 360° Indoor Panoramas." *ECCV 2022*. *Mentored the first author; iterative on research direction and component design. Led the model to production deployment*.
6. J. Lambert, **Y. Li**, I. Boyadzhiev, L. Wixson, M. Narayana, W. Hutchcroft, et al. "SALVe: Semantic Alignment Verification for Floorplan Reconstruction from Sparse Panoramas." *ECCV 2022*. *Mentored the first author; Initiated and shaped the approach*.
7. H. Wang, **Y. Li**, W. Hutchcroft, Z. Wan, I. Boyadzhiev, Y. Tian, S. B. Kang. "PSMNet: Position-Aware Stereo Merging Network for Room Layout Estimation." *CVPR 2022*. *Originated the method and built the initial model; mentored first author*.
8. S. Cruz, W. Hutchcroft, **Y. Li**, N. Khosravan, I. Boyadzhiev, S. B. Kang. "Zillow Indoor Dataset: Annotated Floor Plans with 360° Panoramas and 3D Room Layouts." *CVPR 2021*. *Built the reconstruction platform that produced the dataset's structured annotations*.

PATENTS

32 granted U.S. patents; 8 applications pending. Selected:

1. **Y. Li**, W. Hutchcroft, N. Khosravan, I. Boyadzhiev. "Automated Determination of Acquisition Locations of Acquired Building Images Based on Determined Surrounding Room Data." U.S. Patent 11,645,781 (2024).
2. **Y. Li**, W. Hutchcroft, I. Boyadzhiev, C. Buehler. "Automated Room Shape Determination Using Visual Data of Multiple Captured In- Room Images." U.S. Patent 11,501,492 (2022).
3. **Y. Li**, G. Gingell, I. Boyadzhiev. "Automated Tools for Generating Mapping Information for Buildings." U.S. Patent 11,243,656 (2022).
4. **Y. Li**, L. Guan. "Presenting Image Transition Sequences Between Viewing Locations." U.S. Patent App. US20190318538A1 (2019).

EDUCATION

University of Washington — PhD, Computer Vision & Artificial Intelligence, 2026. Advisors: Linda Shapiro, Sing Bing Kang, Alex Colburn.

University of Washington — MS, Computer Vision, 2017

State University of New York — MS, Geospatial Information Science

Beihang University (Beijing Univ. of Aeronautics & Astronautics) — BE, Opto-Electrical Engineering