

# ALLEN TU

Ph.D. Student, Computer Science — University of Maryland

Research Focus: Scalable and Reliable Vision Systems (3D/4D Reconstruction, Biometrics, Generative Modeling)

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Google Scholar: [sqPGyG4AAAAJ](https://scholar.google.com/citations?user=sqPGyG4AAAAJ)

## SELECTED PUBLICATIONS

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1. Allen Tu, K. Narayan, J. Gleason, J. Xu, M. Meyn, and V. Patel, ‘TransFIRA: Transfer Learning for Face Image Recognizability Assessment’. *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, 2026.
2. A. Hanson, Allen Tu, G. Lin, V. Singla, M. Zwicker, and T. Goldstein, ‘Speedy-Splat: Fast 3D Gaussian Splatting with Sparse Pixels and Sparse Primitives’, in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025, pp. 21537–21546.
3. A. Hanson\*, Allen Tu\*, V. Singla, M. Jayawardhana, M. Zwicker, and T. Goldstein, ‘PUP 3D-GS: Principled Uncertainty Pruning for 3D Gaussian Splatting’, in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2025, pp. 5949–5958.
4. Allen Tu\*, H. Ying\*, A. Hanson, Y. Lee, T. Goldstein, and M. Zwicker, ‘SpeeDe3DGS: Speedy Deformable 3D Gaussian Splatting with Temporal Pruning and Motion Grouping’. *Preprint*, 2025.
5. P. Asthana, A. Hanson, Allen Tu, T. Goldstein, M. Zwicker, and A. Varshney, ‘SplatSuRe: Selective Super-Resolution for Multi-view Consistent 3D Gaussian Splatting’. *Preprint*, 2025.

\* denotes equal contribution.

## EDUCATION

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### University of Maryland, College Park

Ph.D. in Computer Science

College Park, MD

January 2025 – May 2028 (Expected)

- Advised by Professor Tom Goldstein; collaborating with Matthias Zwicker, Vishal M. Patel, and Rama Chellappa

B.S./M.S. in Computer Science, Minor in Statistics

August 2019 – December 2022

## RESEARCH EXPERIENCE

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### University of Maryland Institute of Advanced Computer Studies

Graduate Research Assistant

College Park, MD

August 2023 – Present

- Introduced pruning, rasterization, and motion distillation methods that accelerate static and dynamic 3D Gaussian Splatting, producing representations with over 10× fewer primitives while preserving visual fidelity [2, 3, 4]
- Incorporated diffusion and super-resolution priors into 3D reconstruction pipelines to improve fidelity under sparse and low-resolution supervision regimes while mitigating artifacts and cross-view inconsistencies [5]
- Designed scalable 3D reconstruction pipelines deployed for unconstrained novel-view synthesis in real-world environments under the IARPA Walk-through Rendering from Images of Varying Altitude (WRIVA) program

### Systems & Technology Research

Computer Vision Research Intern

Arlington, VA

June 2022 – January 2026

- Introduced an explainable transfer-learning method for face image quality assessment (FIQA), enabling recognizability-aware probe filtering and weighted template aggregation for face and body recognition [1]
- Demonstrated state-of-the-art template-based recognition on the proprietary BRIAR surveillance benchmark, improving TAR from 0.43 to 0.87 at 1e-3 FMR using an encoder trained solely on public data [1]
- Developed multimodal biometric systems fusing face, body, and gait recognition for robust identification under severe conditions in the IARPA Biometric Recognition and Identification at Altitude and Range (BRIAR) program

## SERVICE

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**Workshop Organization:** SPAR-3D: Security, Privacy, and Adversarial Robustness in 3D Generative Vision Models, IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026.

**Professional Memberships:** Computer Vision Foundation (CVF); IEEE Biometrics Council