

# Griffin J. Hurt

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130 N Bellefield Ave, Pittsburgh, PA 15213

PhD Researcher · Surreality Lab · University of Pittsburgh · NSF GRFP Fellow

## EDUCATION

- 2024 – Present **Ph.D. in Computer Science** — University of Pittsburgh
- **Advisor:** Dr. Jacob Biehl
  - Research: Spatial computing and HCI for clinical applications — mixed reality surgical guidance and computer vision pipelines for XR
  - NSF Graduate Research Fellow
- 2022 – 2024 **B.Phil. in Computer Science** — University of Pittsburgh
- GPA: 4.00 — Summa Cum Laude
  - Thesis: *Untethered Displays: The Effects of Mixed Reality on Split-Attention in Fine-Motor Tasks*
  - Outstanding Undergraduate Student Award, Department of Computer Science (2024)

## PUBLICATIONS

- 2026 **Open-Source Machine Learning Computed Tomography Scan Segmentation for Spine Osteoporosis Diagnostics**  
Akshay Sankar, Michael R. Kann, Samuel Adida, Shovan Bhatia, Regan M. Shanahan, Jhair A. Colan, **Griffin Hurt**, Nikhil Sharma, Nicolás M. Kass, Joseph S. Hudson, Nitin Agarwal, Peter C. Gerszten, Jacob T. Biehl, Andrew Legarreta, Edward G. Andrews, David J. McCarthy  
*Neurosurgery*, Feb 2026
- 2025 **Optimizing the Workflow of Superficial Temporal Artery Mapping in Extracranial-Intracranial Bypass Surgery Using Mixed Reality: A Proof-of-Concept Study**  
Shovan Bhatia, Aaron Huynh, Regan M. Shanahan, Michael R. Kann, Adway Gopakumar, Nikhil Sharma, Nicolás M. Kass, **Griffin Hurt**, Rishi Basdeo, Nicole Don, Michael J. Lang, Jacob T. Biehl, Edward G. Andrews  
*World Neurosurgery*, Dec 2025
- 2025 **MR-MDEs: Exploring the Integration of Mixed Reality into Multi-display Environments**  
**Griffin J. Hurt**, Talha Khan, Nicolás Matheo Kass, Anthony Tang, Edward Andrews, Jacob Biehl  
*Proc. ACM Hum.-Comput. Interact.*, Vol. 9, No. 8 (ISS017), Dec 2025. To be presented at ACM ISS 2026.
- 2025 **SurrealityCV: An Open-Source, Cross-Platform Unity Library for Mixed Reality Computer Vision**  
**Griffin J. Hurt**, Calvin Brinkman, Ethan Crosby, Akshat Dhamale, Edward Andrews, Jacob Biehl  
*Proc. ACM Symposium on Spatial User Interaction (SUI '25)*, Nov 2025
- 2025 **814 Evaluation of Mixed Reality for Burn Margin Visualization and Surgical Planning**  
Christopher Fedor, **Griffin Hurt**, Edward Andrews, Jacob Biehl, Francesco Egro  
*Journal of Burn Care & Research*, Vol. 46, Supplement 1, Apr 2025
- 2024 **EndovascularAR: Utility of Mixed Reality to Segment Large Displays in Surgical Settings**  
**Griffin J. Hurt**, Talha Khan, Michael Kann, Edward Andrews, Jacob Biehl  
*2024 IEEE VR Abstracts and Workshops (VRW)*, Apr 2024

## RESEARCH EXPERIENCE

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- 2024 – Present     **PhD Researcher** — Surreality Lab, University of Pittsburgh
- Part of the technical team for the **first mixed-reality-mediated endoscopic endonasal skull base surgery** performed at UPMC Presbyterian (February 2026)
  - Designed and implemented stereo video capture on Apple Vision Pro (AVP Stereo Capture) and deployed RAFT-Stereo via CoreML for real-time neural disparity matching (~135 ms on AVP)
  - Building SurrealityCV — a cross-platform C++/C#/Python XR computer vision library with Unity integration and OpenCV backend; HoloLens 2 support in development
  - Architecting low-latency surgical video streaming systems using intraframe compression and WebRTC
  - Authored proposal to the NSF GRFP exploring mixed reality needle guidance for arterial line placement
- Summer 2024     **Research & Development Intern** — Medivis, New York, NY
- Contributed to R&D on the SurgicalAR Ultrasound add-on — an AR-enabled system supporting wireless POCUS probes (Clarius) and wired probes with spatial tracking and situated holographic views
- 2022 – 2023     **Undergraduate Research Assistant** — Department of Computer Science, University of Pittsburgh
- Designed and built mixed reality systems for Microsoft HoloLens 2 to study display modality effects on user sentiment and task accuracy
  - Led study design evaluating MR effects on cognitive load and situational awareness in split-attention tasks, using LEGO assembly as a model fine-motor task
- 2021 – 2022     **High School Research Assistant** — Zervantonakis Lab, University of Pittsburgh
- Investigated spatial tumor–fibroblast interactions in HER2+ breast cancer and their effects on proliferation
  - Developed software now used to analyze nearly 1 million microscopy images in the lab’s AI image analysis pipeline
  - Studied trade-offs between classical and random forest ML approaches to cellular image segmentation

## HONORS & AWARDS

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- 2024     NSF Graduate Research Fellowship (GRFP)
- 2024     Outstanding Undergraduate Student Award, Department of Computer Science, University of Pittsburgh
- 2023     Best Capstone Talk Award, Department of Computer Science, University of Pittsburgh
- 2023     Chancellor’s Undergraduate Teaching Fellowship, Frederick Honors College, University of Pittsburgh
- 2023     Dean’s List, School of Computing and Information, University of Pittsburgh

## TEACHING EXPERIENCE

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- 2023 – 2025     **STEM Through Games — Course Designer & Instructor**
- Designed, piloted, and iteratively evaluated a high school curriculum covering computational thinking, programming fundamentals, and STEM research methods through game design and development
  - Taught Unity (GameObjects, C#, Components) to ~11 students per cohort; collected data on the efficacy of game-based STEM education

- Spring '24 **CS 0449: Introduction to Systems Software — UTA** — University of Pittsburgh
- Led recitation (~20 students) covering C programming, compiling/linking, multithreading, and synchronization
- Fall '23 **CS 0441: Discrete Structures for Computer Science — UTA** — University of Pittsburgh
- Led recitation (~20 students); selected and presented worked example problems
- Sp '23 - Sp '24 **CMPINF 0010: Big Ideas in Computing and Information — UTA** — University of Pittsburgh
- Taught lab section (30–35 students) covering Python, Pandas, Linux CLI, and Git
  - Awarded Chancellor's Undergraduate Teaching Fellowship to redesign lab curriculum in alignment with lecture content

## SELECTED PROJECTS

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- 2024 – Present **AVPStereoCapture** — Surreality Lab
- *Swift, ARKit, AVFoundation* — Stereo video capture on Apple Vision Pro with calibrated intrinsics and extrinsics
- 2024 – Present **VisionProDisparityMatching** — Surreality Lab
- *Swift, CoreML, RAFT-Stereo* — Neural stereo disparity matching on Apple Vision Pro via CoreML (~45 ms on M3 Max; ~135 ms on AVP)
- 2023 – Present **SurrealityCV** — Surreality Lab
- *C++, C#, Python, CMake, OpenCV, UnityXR* — Cross-platform XR computer vision library with Unity-compatible bindings and OpenCV backend; HoloLens 2 support in development
- 2022 **Schedule++** — CSCSHacks — 1st Place
- *JavaScript, GraphQL, CORS, Web App Manifest* — Open-source browser extension adding scheduling features to Pitt's course portal; led a team of 3

## SKILLS

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- Languages C++, C#, Python, Swift, Bash, HLSL/Metal, JavaScript,  $\LaTeX$
- Frameworks Unity XR Toolkit, OpenCV, Open3D, CoreML, ARKit, RealityKit, WebRTC, React, Vue.js
- Platforms Apple Vision Pro, Microsoft HoloLens 2, Raspberry Pi, Linux, macOS, iOS
- Research Within-subjects user studies, cognitive load (NASA-TLX), qualitative coding, IRB protocol design, clinical trials
- Tools CMake, Git, Xcode, Visual Studio, Fusion 360, 3D printing

## PROFESSIONAL EXPERIENCE

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- 2023 **UPMC Hillman Academy — Resident Assistant** — Pittsburgh, PA
- Supervised 8 students across a 7-week immersive cancer research program
  - Provided mentorship, mental health support, and academic guidance
- 2021 – 2022 **IC4 Project — Student Mentor** — Pepperdine University (Remote)
- Designed and taught Python curriculum; mentored student teachers in delivering lessons and building projects
  - Developed proprietary EdTech tooling to streamline CS distance learning
- 2019 **Fi360, A Broadridge Company — Software Intern** — Pittsburgh, PA
- Contributed to Vue.js UI development for the Stable Value product
  - Analyzed and documented legacy C# codebases

## LEADERSHIP & SERVICE

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- 2025 Presenter and Student Volunteer, ACM Symposium on Spatial User Interaction (SUI 2025)
- 2023 Student Volunteer, ACM Interactive Surfaces and Spaces (ISS 2023)
- 2023 Undergraduate Presenter, Zervantonakis Lab, LEAD Program, University of Pittsburgh
- 2023 Student Panelist, Early Experiences in Undergraduate Research, School of Computing and Information
- 2022 Student Representative, SCI Academic Council, School of Computing and Information, University of Pittsburgh
- 2022 High School Research Presenter, Zervantonakis Lab, LEAD Program, University of Pittsburgh