

Ryan Aubrey

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RELEVANT EXPERIENCE

Graduate Researcher, Computer Science Department, Brown University

June 2026- Present

- Developing a neurosymbolic surface-detail transfer method that extracts localized 3D details (e.g. horns, masks) from one mesh via Vision Transformer (ViT) features and re-applies them to topologically distinct base models
- Building a staged dataset-generation pipeline on Brown's Oscar HPC cluster (SLURM array jobs): image-to-3D via pixel-aligned generation (Pixa3D), multiview rendering, DINO/SDXL feature extraction, debiasing, and UV backprojection
- Co-authoring a manuscript on the method, in preparation for submission to a graphics/vision venue

Supervised Study Project, Computer Science Department, Harvey Mudd College

August 2024- May 2025

- Evaluated temporal consistency and robustness of 6 SOTA monocular depth models across 4,269 frames (2,245 real + 2,024 synthetic) from 30 multiview video sequences
- Lead a 4-person synthetic data team, creating 7 multi-object Blender scenes with ground-truth depth for benchmarking
- Designed and fabricated 3D-printed camera-rig system for real-world data collection
- Co-authored SCAIR 2025 paper: *Depth Anyviewpoint? Evaluating Monocular Depth Over Viewpoint Sequences*

NSF-REU Researcher, Computer Science Department, University of Utah

May 2024- August 2024

- Investigated Explainable AI (XAI) by extracting features from Vision Transformers (ViTs) and Convolutional Neural Networks (CNNs) via Guided Grad-CAM and backpropagation
- Benchmarked architectures using Structural Similarity Index Measure (SSIM)- based feature analysis
- Utilized TensorFlow and PyTorch to quantify model behavior shifts under dataset perturbations (ImageNet, cartoonized, and hand-drawn)

Research Assistant, Computer Science Department, Pomona College

January 2024- May 2024

- Conducted mixed-methods user research: qualitative study (n=46) and quantitative survey (n=383) assessing comprehension of 116 privacy-label terms on iOS and Android
- Analyzed 1,500+ IRB free-response entries in Excel to identify 27 misunderstood privacy-label terms across 3 misconception categories (ambiguity, technical overload, syntactic confusion)
- Co-authored USENIX SOUPS 2025 paper: *User Understandings of Technical Terms in App Privacy Labels*

SKILLS

Programming: Python, Java, TypeScript, Rust, C/C++, Swift, Haskell, R, HTML/CSS **ML/Frameworks:** PyTorch, TensorFlow

Tools: Xcode, Excel, LaTeX **Design/3D:** Blender, Figma, Unreal Engine, Photoshop, Illustrator **Language:** Mandarin (5 years)

EDUCATION

Brown University, Providence, RI

Expected May 2027

Sc.M. in Computer Science; AI/ML (GPA 4.0/4.0)

Relevant Coursework: Computer Systems, Software Engineering, Machine Learning, Advanced Computer Graphics

Activities: AGI at Brown, Graduate Consulting Club

Pomona College, Claremont, CA

May 2025

B.A. in Computer Science, Minor in Media Studies (GPA 3.9/4.0)

Relevant Coursework: Computer Vision, Neural Networks, Data Structures Adv Programming, Linear Algebra

Awards & Activities: Pomona College Scholar, 4-year Varsity Track & Field athlete (Shot Put & Discus), SCIAC Athlete of the Week, Pomona Blockchain Club, 5C Ukrainian Alliance, Claremont Cybersecurity Club

St. John Bosco High School, Bellflower, CA

May 2021

Summa Cum Laude, Principal's Honor Roll, Presidential Scholar, Scholar-Athlete (GPA 4.5/4.0)

Activities: Varsity Track & Field (Shot Put & Discus): All-Trinity League, CIF Southern Section Finals Qualifier

PROJECT

Personal Website, RyanMAubrey.github.io — portfolio of research, publications, and projects

Co-founder & CTO, AthLink, Los Angeles, CA

June 2024- May 2026

- Lead 3-person team in developing mobile app; oversee wireframes and UI/UX design in Figma
- Optimize app functionality in Swift/Xcode to ensure seamless performance and user experience

LEADERSHIP & SERVICE

Volunteer, Laguna Food Pantry- Collected surplus groceries for a pantry serving 200+ families daily

Nov 2020- Dec 2024

Coordinator, Meals on Wheels- Managed meal deliveries for at-risk seniors during COVID-19

June 2020- August 2020