VARUN SIDDARAJU

XR Systems Architect · Spatial AI & Embodied Intelligence · Author

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PROFILE

XR systems architect with 10+ years building and deploying immersive spatial computing applications across enterprise, healthcare, and industrial sectors. Creator of the **Harmony framework** — a 5-layer ecosystem integrating multimodal context inference, cognitive load-aware interfaces, and explainable AI mediation for adaptive XR systems. Apress author, IEEE Best Paper Award recipient, and founder of VeeRuby Technologies with 50+ production XR systems shipped. Seeking opportunities in Spatial AI, embodied intelligence, or XR systems.

EDUCATION

Master of Science — Electrical Engineering *2016 – 2018*
Texas State University, TX · *X-Reality Lab · Graduate Research Assistant · Thesis Fellowship*

Bachelor of Engineering — Electronics & Communication *2011 – 2015*
Visvesvaraya Technological University, India

RESEARCH — HARMONY FRAMEWORK

Harmony is a 5-layer adaptive spatial computing ecosystem: *L0 Framework → L1 OpenSpatialAI Platform → L2 Harmony One → L3 Micro Apps → L4 Research & Prototypes.* Harmony One integrates four runtime layers: Perception → Cognition → Memory → Action.

Active Thesis Branches

B1 - Multimodal Context Inference: Fusing gaze, body pose, and task signals for continuous real-time user state modeling in XR.
B2 - Cognitive Load-Aware Adaptation: Dynamic spatial UI reconfiguration driven by inferred cognitive load and attention state.
B3 - Explainable AI Mediation: Transparent, opt-in AI intervention with user-auditable decision logs in spatial systems.

PROFESSIONAL EXPERIENCE

XR + AI Researcher & Systems Thinker · VeeRuby — The AR VR Development Company · *Seattle, WA* *Oct 2025 – Present*
- Leading the Harmony framework — integrating spatial computing, generative AI, and multimodal interfaces for adaptive immersive environments.
- Designing and prototyping PoC systems across immersive classrooms, AI-mediated training simulations, and intelligent workspaces.
- Authoring research outputs including whitepaper drafts and Harmony framework specification documents.

Program Manager — AI & XR Products & Services · Ong Innovations · *Seattle, WA* *Sep 2024 – Sep 2025*
- Scaled AI/XR division from concept to multi-site operations; drove 40% increase in enterprise adoption.
- Directed LimitlessVR — AI + XR platform with conversational spatial agents; reduced development cycles by 25%.
- Secured $50K in research funding; directed $200K in investments yielding $600K+ revenue growth.

Product Manager, AR/VR Division · Ong Innovations · *Seattle, WA* *Jul 2023 – Aug 2024*
- Delivered 50+ AR/VR projects across enterprise, education, and entertainment; managed 4 concurrent product lines.
- Launched LimitlessVR and Byldr (no-code XR platform); reduced delivery time by 30%.

Chief Executive Officer · VeeRuby — The AR VR Development Company · *Mysore, India* *Apr 2022 – Jun 2023*
- Led cross-border XR/AI company delivering enterprise solutions in automotive, healthcare, and industrial sectors.
- Defined product vision and go-to-market strategy; scaled team from 3 to 12 across U.S. and Indian operations.

Lead Software Engineer · Ong Innovations · *Seattle, WA* *Jan 2019 – Feb 2020*

- Built proprietary XR tracking and spatial mapping system for a 4,000 sq ft free-roam multi-user environment (50+ simultaneous users).
- Developed 8 learning paths and 25 Azure XR SDK modules in direct collaboration with Microsoft.

Research Associate / Graduate Research Assistant · Texas State University · *San Marcos, TX* *Dec 2016 – Dec 2018*

- Developed AR/VR applications for Microsoft HoloLens; contributed to 3 peer-reviewed publications in computer vision and mixed reality.
- Co-presented research at SXSW 2018 and IEEE Greentech Conference; applied MATLAB image processing in Unity 3D pipelines.

PUBLICATIONS

JOURNAL	Koutitas, G., Siddaraju, V. K., & Metsis, V. (2020). In situ wireless channel visualization using augmented reality and ray tracing. Sensors, 20(3), 690. MDPI.
CONF.	Siddaraju, V. K., Koutitas, G., & Metsis, V. (2018). An augmented reality facet mapping technique for ray tracing applications. IEEE ICDT, Athens, Greece. ★ Best Paper Award
CONF.	Siddaraju, V. K., & Koutitas, G. (2018). X-Reality Research Lab: Augmented reality meets Internet of Things. IEEE VR Workshop.
BOOK	Siddaraju, V. K. (2021). Beginning Windows Mixed Reality Programming (2nd ed.). Apress. ISBN 978-1-4842-6348-8.

AWARDS & RECOGNITION

Best Paper Award — IEEE ICDT Athens 2018 · Thesis Research Fellowship — Texas State University 2017 · Elevate Unnati Winner (LabXR) — Government of Karnataka 2020 · 10 Best AR/VR Startups to Watch — Silicon India 2021, 2023 · 52 Most Innovative VR Companies — VRARA 2022

TECHNICAL SKILLS

Platforms	Unity 3D · Unreal Engine 5 · WebXR · OpenXR
Headsets	Microsoft HoloLens 1 & 2 · Meta Quest 2/3/Pro · HTC Vive / Vive Focus · PICO 4
Spatial	RealityCapture · Metashape · Azure Spatial Anchors · Vuforia · 3D Reconstruction
AI & Cloud	Azure AI Services · Generative AI Agents · LLM Integration · Computer Vision APIs
Development	Python · C# · MATLAB · GitHub · Agile · Cross-border Team Leadership

SELECTED PROJECTS

Healthcare & Life Sciences: XR Medical Viewer · Human Anatomy MR · Oral Saliva Collector Showcase

Industrial & Training: Sweeper Truck Training · VR Mining Simulation · VR Welding (Meta Quest 2) · Industrial XR - Halliburton

Education & K-12: LabXR Virtual Laboratory · Periodic Table MR Game · XR Recycle Game · Gorillazilla XR Dev Course

Architecture & Urban: XR City Model Viewer · XR Deck Construction · Multiuser 3D Model Viewer · GIS Data Visualization

Space & Research: NASA Mars Rover VR Experience · NASA XR + HoloLens 2 Projects

OPEN RESEARCH QUESTIONS

- How can XR systems infer and track continuous cognitive state from multimodal sensor streams in real time?
- What persistent memory architectures enable genuine cross-session personalization without model retraining?
- How should AI interventions in XR environments be made explainable, opt-in, and user-auditable?