SRIJA MADARAPU

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SUMMARY

Computer Science graduate student with 2+ years of enterprise software development experience with Strong background in system-level thinking, process optimization, and translating business needs into scalable technical implementations. Proven success in building end-to-end automation using RPA, developing 3D systems, and conducting computer vision research. Skilled at writing clear technical documentation and collaborating across multidisciplinary teams. Committed to continuous learning and applying emerging technologies to improve system performance and reliability.

EDUCATION

University of Southern California Los Angeles, CA
Master of Science : Computer Science(Multimedia & Creative Technologies) June 2023-May 2025

Kakatiya Institute of Technology & Science Telangana, India
Bachelor of Technology : Information Technology August 2016-May 2020

PROFESSIONAL EXPERIENCE

University of Southern California
Research Assistant – Multi-Domain Immersive Systems August 2025-Present

- Developing an experimental system for multi-domain immersive experiences across VR/AR/mobile platforms.
- Building cross-device XR interactions using Unity, C#, OpenXR, and real-time rendering pipelines.
- Integrating computer vision signals and sensor data to enable adaptive immersive environments.

KINTSUGI GLOBAL INC Los Angeles, CA
Summer Intern (3D Character Animator) June 2024-September 2024

- Engineered 3D chatbot avatar character meeting 100% of client specifications, resulting in 40% increased user engagement
- Collaborated with a 5-person cross-functional team and documented system architecture for handoff and future scalability.
- Implemented advanced animation techniques and seamless platform integration, optimizing user experience and decreasing

TATA Consultancy Services (Client: PepsiCo)
Software Engineer/Developer - RPA Specialist September 2020-December 2022

- Designed and implemented automation for 90+ critical SAP processes using UiPath, reducing manual errors by 65%
- Developed an intelligent health-check BOT that cut process time from 4 hours to 1.5 hours.
- Automated 50+ BASIS and 40+ functional checkouts across 8 global regions.
- Collaborated directly with C-level executives to identify and automate key business processes
- Mentored two junior engineers in RPA best practices and contributed to internal documentation and SOPs.

ACADEMIC PROJECTS

Computer Vision: Feature Matching, 3D Reconstruction, & Object Detection

- Implemented RANSAC and SIFT algorithms for panoramic image creation, achieving 95% feature matching accuracy
- Enhanced 3D reconstruction pipeline using SFM and Gaussian Splatting, cutting down reconstruction time by 40%
- Fine-tuned ResNet9 and LeNet5 deep learning models for image classification, revamping accuracy by 18% through advanced preprocessing techniques
- Constructed RCNN and DETR implementations for object detection, processing 1000+ images with 52% mAP
- Investigated adversarial attacks on deep learning models, improving model robustness by 25% through enhanced security measures

Game Engine Enhancements

- Engineered dynamic NPC system with AI-driven random waypoint movement and combat behaviors, enhancing game immersion scores by 45%
- Implemented advanced collision detection using optimized bounding volumes, improving game performance by 30% FPS
- Developed frustum plane equations for performance optimization, reducing rendering overhead by 35% in complex scenes
- Enhanced environmental effects systems (rain, wind, water dynamics) with realistic lighting interactions for immersive gameplay

Realistic 3D Rendering System

- Developed custom Scanline Algorithm for rasterization with complete transformation pipeline (scaling, rotation, translation)

- Integrated multiple shading models (Flat, Phong, Gouraud) with PPM image textures, achieving photorealistic rendering quality
- Implemented anti-aliasing algorithms improving image quality by 40% while maintaining 60+ FPS performance
- Created stereo rendering and ray tracing systems with simplex noise generation for immersive 3D visualisation

Computer Animation and Simulation

- Developed comprehensive animation framework using C/C++ and OpenGL, supporting deformable objects
- Implemented character rigging system with inverse kinematics, reducing animation setup time by 50% for complex characters
- Created physics simulation engine for cloth and rigid body dynamics, processing 5000+ particles in real-time
- Integrated keyframe animation and motion capture data, enabling seamless character movement with 95% accuracy

Robotic Hand Path Planning

- Engineered comprehensive robotic arm mechanics system analyzing 6-DOF movement capabilities across 360 workspace
- Implemented Kalman filter algorithms for trajectory optimization, reducing path deviation by 20% in complex environments
- Programmed Rapidly-exploring Random Trees (RRT) path-planning algorithms ensuring 100% collision-free object manipulation
- Created real-time workspace visualization system displaying potential paths with optimal route selection

TECHNICAL SKILLS

Programming Languages : C,C++, Python, Java, C#/.NET
3D/Animation Tools : Blender 3D, Maya, Unity, WebGL, Collision Detection, TouchDesginer
Computer Vision/AI : OpenCV, Machine Learning, Deep Learning, Object Detection, Image Classification
Automation & Database : UiPath RPA, MySQL, Process Automation
Graphics & Rendering : OpenGL, Ray Tracing, Shader Programming
Robotics: ROS (Robot Operating System), Robotics Path Planning, Kinematics & Dynamics
Tools / Others: MATLAB, Linux, VS Code, MS Office
Certification: UiPath Certified RPA Developer Foundation Course

PUBLICATIONS

- Publication: "Modified AES using Dynamic S-Box and DNA Cryptography" - 2019 Third International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)