

ISRAVEL

LEAD RESEARCH ENGINEER

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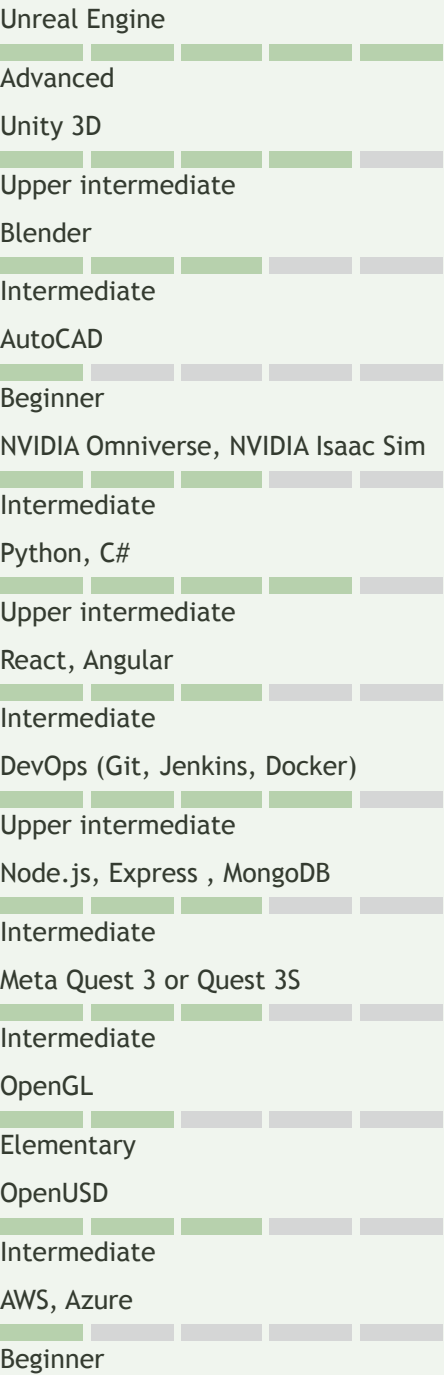
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PROFESSIONAL SUMMARY

Lead Research Engineer with 9+ years of experience in real-time 3D technologies (Unity, Unreal), synthetic data generation, simulation development and interactive visualization systems. Proven expertise in building high-fidelity virtual environments, digital twins, digital humans and automotive in-cabin simulations. Strong foundation in software engineering, real-time rendering, and system optimization, with a focus on delivering accurate, efficient, and visually rich simulation solutions. Experienced in advanced visualization technologies, including VR/MR, and passionate about user-centered design, UI/UX, and next-generation digital experiences.

SOFTWARE EXPERTISE



PORTFOLIO WEBSITE, PROFILE

- <https://www.israelinnasimuthu.com/>

PERSONAL PROJECTS

- Robotics Simulation & Sensor Integration:** Engineered a 4WD skid-steer mobile robot in NVIDIA Isaac Sim, configuring differential drive kinematics and integrating active camera and LiDAR sensors.
- Graph-Based Actuation & Visualization:** Developed an OmniGraph / Action Graph pipeline to orchestrate robot logic, successfully publishing live LiDAR sensor streams to RViz for real-time data visualization and debugging.

WORK EXPERIENCE (2017 - CURRENT)

Hyundai Mobis - Lead Research Engineer
Hyderabad, India • 04/2024 - Current

- Using Unreal Engine, developed synthetic datasets for car in-cabin monitoring systems, covering both Occupant Monitoring System (OMS) and Driver Monitoring System (DMS) scenarios.
- Created realistic human avatars with Unreal Engine Metahumans, featuring customized sitting postures, hand gestures, facial expressions and occupant behaviors.
- Integrated seatbelt mechanisms using cable-based simulations for physical interactions
- Implemented segmentation workflows using custom depth and post-process materials to generate label and instance maps for AI model training.
- Created and integrated facial expressions using Unreal Engine Metahuman Animator to achieve realistic human emotions.
- Applied lens distortion effects to simulate real-world camera characteristics and generate highly realistic image outputs
- Focused on achieving high visual fidelity and annotation-ready datasets optimized for computer vision and AI applications.
- Designed and implemented UI using Figma and Unreal's UMG.

EDUCATION

Panimalar Engineering College
(affl. Anna University)
Chennai • 06/2012 - 05/2016

Bachelor of Engineering:
Mechanical Engineering

CERTIFICATIONS

09/2022
Microsoft Certified : Azure AI
Fundamentals

09/2022
Microsoft Certified : Azure Data
Fundamentals

Hyundai Mobis - Senior Research Engineer
Hyderabad • 12/2022 - 03/2024

- Worked on generating synthetic data for the front camera with Unreal Engine.
- Developed high-fidelity 3D environments in Unreal Engine with procedural generation techniques.
- Integrated Unreal Engine with Python executable for distorting the images with camera parameters.
- Quickly gained proficiency in React and Three.js to contribute to point cloud visualization and rendering within a React-based web application.

Infosys Ltd. - Technology Analyst
India • 10/2021 - 11/2022

- Created Unity multiplayer live quiz game with dedicated Server-Client Model with Mirror framework.
- Using MakeHuman, integrated human models into a virtual classroom environment.
- Worked on animations, navmesh, audio to create better user experience.
- Worked with post processing, lighting, timelines, cinemachine and camera stacking to provide a visual treat for users.
- Used Figma and Unity UI to improve game UI/UX for better user experience

Infosys Ltd. - Senior Software Engineer
India • 09/2019 - 09/2021

- Developed better-looking and highly interactive UI elements with React.
- Researched multiple options to convert a 2D front end page into 3D front end page.
- Worked on creating virtual hall setup with Unity for an internal corporate event.
- Used Unity Timelines, to create cutscenes for landing pages.
- Focused on Unity 3D and developed basic 3D games.

Infosys Ltd. - Software Engineer
India • 02/2017 - 08/2019

- Started career as an end to end developer on Oracle ATG Platform's product development and got certified by Oracle.
- Participated in architecture, design and implementation of back-end features using NodeJS(Express), MongoDB.
- Successfully supported 2 projects for Angular/React.
- Created WebGL based games with Unity for the webpages