Aswin Vattapparambathu Jayaprakash

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An XR enthusiast with hands-on experience in immersive technologies, 3D visualization, and intelligent imaging.

EDUCATION

IMLEX - MSc Engineering, Lighting and XR | MSc in Optics, Image, Computer Vision, Machine Learning and Multimedia | MSc of Computer Science •

University of Eastern Finland | Universite Jean-Monnet | Toyohashi University of Technology

Finland | France | Japan • 09/2024 - 09/2026

The multidisciplinary IMLEX programme brings together image conversion, lighting and computer science. Students will visit two European countries and Japan during the studies, and graduate from three universities.

BSc (honors) in Physics • Hindu College, University of Delhi

Delhi, India • 11/2020 - 07/2023

WORK EXPERIENCE

Virtual Reality Research Intern

LIRIS (Laboratoire d'InfoRmatique en Image et Systèmes d'information)   **Saint-Étienne, France** • **06/2025 - Present**

- Creating VR multisensorial immersive experiences, developing C#/Unity-based immersive environments and assisting in the design of experimental protocols.
- Gaining hands-on experience in extended reality and human-computer interaction.

Student Research Assistant

Hindu College, University of Delhi   **Delhi, India** • **06/2023 - 01/2024**

- Conducted an in-depth review of laser-based headlamp technologies, focusing on advantages such as luminous efficiency, compact design, and adaptive driving beam (ADB) capabilities.

Research Intern

D S Kothari Centre for Research and Innovation in Science Education   **Delhi, India** • **06/2023 - 07/2023**

- Conducted astrophysical analysis of Gaia Early Data Release 3 using Python and SQL to identify extra-tidal star candidates.

Student Research Assistant

Hindu College, University of Delhi   **Delhi, India** • **06/2022 - 08/2022**

- Designed and implemented a low-cost, Arduino-based system using a TCS230 color sensor to measure visible light wavelengths with calibrated precision.

PROJECTS

Face-to-Ball: Deep Learning-based Lighting Transfer (using synthetic data)   03/2025 - 05/2025

Jean Monnet University, France

- Synthesized a dataset of facial images and lighting conditions using 3D modeling tools and Trellis AI.
- Designed and trained a U-Net architecture (with ResNet34 backbone) for relighting tasks based on facial cues.

Real-Time 3D Color Cloud Visualization (WebGL & Three.js)   02/2025 - 02/2025

Jean Monnet University, France

- Developed a real-time interactive color cloud visualization system in Three.js and WebGL
- Designed and implemented GLSL shaders for rendering RGB, CIExyY, and CIELAB color spaces
- Integrated VR/MR interactions on Meta Quest, allowing users to manipulate video and color clouds in 3D

Performance and Stress Detection Using Eye Tracking Data   11/2024 - 12/2024

University of Eastern Finland, Finland

- Designed and conducted a study using Tobii Eye Tracker to explore the effects of time pressure on performance and stress.
- Developed gaze analysis workflows using IDT algorithms for saccades and fixation detection.

Path Planning for Robotics   12/2024 - 12/2024

University of Eastern Finland, Finland

- Developed SLAM, autonomous navigation, and odometry in ROS 2 with custom path planning in Gazebo/Rviz.
- Created custom ROS 2 packages and Python nodes for path visualization and navigation control.

Laser Diode Advancements in Automotive Lighting: A Comprehensive Review of Laser-Based Headlamps

<div align="right">06/2023 - 01/2024</div>

Hindu College, University of Delhi, India

- Conducted a detailed review of laser-based headlamps, analyzing advantages like 170 lm/W luminous efficiency, compact design, and adaptive driving beam (ADB) capabilities.

- Identified challenges in heat management, laser safety, and cost reduction to inspire advancements in automotive lighting technologies.

SKILLS

- **Programming languages:** C++, Python

- **Software/Tools:** CUDA, DaVinci Resolve, Latex, OpenMP, PyTorch, ROS2, Scilab (Matlab alternative), Three.js, Unity, WebGL, WebXR

- **Languages:** English (Bilingual), French (Beginner), Hindi (Bilingual), Japanese (Beginner), Malayalam (Native)

- **Soft skills:** Creativity, Critical thinking

CERTIFICATIONS

Python 3.4.3 Training

Spoken Tutorial Project, IIT Bombay

Scilab Training

Spoken Tutorial Project, IIT Bombay

Problem Solving Using Computational Thinking

University of Michigan