

Amarnath Murugan

Researcher | Game Developer

Contact

amarnath2105@gmail.com

Links

[Portfolio](#)

[GitHub](#)

[Artwork](#)

[LinkedIn](#)

Languages

English(ILR S-5)

Tamil(ILR S-5)

Programming Languages

C#

C

C++

Python

GLSL

Tools & Frameworks

Unity 3D

3DS Max

After Effects

Photoshop

Specializations

Extended Reality

Gamedev

HCI

Education

2015–2019

SRM Institute of Science & Technology, Kattankulathur

B.Tech in Computer Science (89.15% | Merit Scholarship recipient)

Experience

Since Feb'19

Research Associate & Intern | IDC School of Design, IIT Bombay

Researching on narratives, education & novel interaction techniques in XR, while assisting development of student projects

Since May'21

Research Intern | Empathic Computing Lab, University of South Australia

Researching on editing volumetric videos in VR

Since Feb'21

Volunteer | SIGGRAPH Research Career Development Committee

Working with the sub-group that's developing a mentorship program for undergrads

Since Jan'21

Board of Studies Member | CSE Dept, SRMIST

Helping establish the B.Tech CSE with games technology specialization course

Nov'17-Jun'19

Student Ambassador | Unity Technologies

Worked on democratizing XR and Game development among students

Aug'16-Jun'19

Researcher and Team Lead | Next Tech Lab

Led the HCI group within the lab and was involved in multiple XR projects

Feb'18-Feb'19

Vice-Chair | ACM SIGCHI Chapter, SRMIST

Created the first SIGCHI student chapter in India. Conducted events and workshops to promote HCI

Jun'18-Jul'18

Summer Research Intern | IDC, IIT Bombay

Conducted research on interactive live-action movie experiences in VR

Jun'17-Dec'17

Intern | Merkel Haptic Systems, IIT Madras Research Park

Implemented POCs in HoloLens pertaining to the Health care industry

Dec'16-Jan'17

Intern | XR Labs

Created remote monitoring and product viz demos in HoloLens

Publications

Mar 2021

Amarnath Murugan, Rishi Vanukuru and Jayesh Pillai. **Towards Avatars for Remote Communication using Mobile Augmented Reality** | IEEEVR '21

Nov 2020

Rishi Vanukuru, Amarnath Murugan, and Jayesh Pillai. **Dual Phone AR: Exploring the use of Phones as Controllers for Mobile Augmented Reality** | VRST '20

Oct 2020

Rishi Vanukuru, Amarnath Murugan, and Jayesh Pillai. **Dual Phone AR: Using a Second Phone as a Controller for Mobile Augmented Reality** | UIST '20

Mar 2020

Prabodh Sakhardande, Amarnath Murugan, and Jayesh S. Pillai. **Exploring Effect Of Different External Stimuli On Body Association In VR** | IEEEVR '20

Nov 2019

Amarnath Murugan, Jayesh S. Pillai, and Amal Dev. **Cinévoqué: Development of a Passively Responsive Framework for Seamless Evolution of Experiences in Immersive Live-Action Movies** | VRST '19

Nov 2019

Jayesh S. Pillai, Amal Dev, and Amarnath Murugan. **Till We Meet Again: A Cinévoqué Experience** | VRCAI '19

Nov 2019

Amarnath Murugan, Ganesh A. Balaji, and R. Rajkumar. **AnatomyMR: A Multi-User Mixed Reality Platform for Medical Education** | Journal of Physics: Conference Series. Vol. 1362. No. 1. IOP Publishing, 2019

Sep 2019 Jayesh S. Pillai, Amarnath Murugan, and Amal Dev. 2019. **Cinévoqué: Design of a Passively Responsive Framework for Seamless Evolution of Experiences in Immersive Live-Action Movies** | INTERACT '19

Honors & Awards

Nov 2020 **Workshop Organizer | ISMAR '20**
Conducted a workshop on Designing a Mobile Augmented Reality Learning Experience for K12

Dec 2019 **Best Hack | Music Hack Day '19, Mumbai**
Won best music hack for building a multi-user VR tool for musical collaboration involving digital twins

Nov 2019 **Speaker | IndiaHCI '19**
Invited speaker at India's largest HCI conference under 'Out of India' section

Dec 2018 **Speaker | Unite India '18**
Spoke on 'Interest driven Cinematic VR' at Unity's national conference ([Link](#))

Apr 2017 **Winner | Smart India Hackathon '17**
Won the World's biggest Hackathon at the time for an app that uses XR to improve museum experiences

Highlighted Projects

Since Feb'20 **Graphics Programming**

- Implemented a multi-threaded CPU path-tracer in C++ that supports dielectrics, volumes and BVH based on the Ray Tracing in One Weekend series
- Wrote a shader that use SDFs to generate an interactive model of a pixar character, and interactive shaders that visualize the 2D & 3D mandelbrot set [Shadertoy](#)

Since June'18 **Cinévoqué**

- Designed and implemented a system that allows creation of branching storylines for stereoscopic live-action VR films in Unity. The decisions are based on the viewer's gaze, but the changes in the experience are passive.
- Created three responsive VR films that run on this system. The largest of which had eight possible storylines of different genres.

Since June'18 **Scholar**

- Implemented and designed content for a system that allows teachers to moderate and conduct co-located AR sessions in physical classrooms
- Developing and designing a networked mobile AR app for remote learning
- Implemented procedural networked avatars for mobile AR
- Assisted with multiple on site experiments in urban and rural middle schools

Mar'19-Jun'19 **Body Association VR study**

- Helped design an experiment that compares the individual effect of visuomotor, olfactory and tactile stimuli on embodiment in VR
- Implemented an avatar with inverse kinematics that's controlled by the user in VR

Courses

Sep 2019 **Monsoon HCI Course 2019 | IIT Bombay**
A intensive course that teaches HCI and UX through a hands-on approach. My team worked on a net banking solution for kids that could inculcate good financial habits

Feb 2020 **Quantitative Research Methods Course 2020 | IIT Bombay**
An accelerated course that covers quantitative research methods in HCI. During which I got to design, conduct and analyze an experiment meant to study time perception while playing games