Amarnath Murugan
Researcher | Game Developer

Contact

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Links

Portfolio
GitHub
Artwork
LinkedIn

Languages

English(ILR S-5)
Tamil(ILR S-5)
Japanese(ILR S-0)

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 Scool of Design, IIT Bombay** Researching on narratives, education & novel interaction techniques in XR, while assisting development of student projects
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** Promoted the field of HCI through workshops and technical events
Jun'18-Jul'18	**Summer Research Intern | IDC, IIT Bombay** Conducted research on interactive 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** (In Press) | **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   **Wokshop 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**
Bagged the first place in the World's biggest Hackathon at the time. We built 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 shaders to visualize the Mandelbrot set and Raymarched Mandelbulb in *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
- 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 inverse kinematics based avatar in a VR environment that is externally controlled by the experimenter. The application also communicated with Arduino to trigger olfactory stimuli and to record physiological data along with the events in VR.

Courses

Sep 2019   **Monsoon HCI Course 2019 | IIT Bombay**
A two-week 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