

# MSC SHIVI VATS

9020 Klagenfurt, Austria

+43 660 6913302 ✉ shivivats7@gmail.com  shivivats  shivivats  shivivats-aaU  shivivats.github.io

Please note: I hold a Red-White-Red Card Plus, which lets me work in Austria without requiring a new permit.

## Work Experiences

---

### University of Klagenfurt

Oct 2022 – Present

*Project Assistant, SPIRIT Project*

*Klagenfurt, Austria*

- Developed a fully modular subjective testing platform for the HoloLens 2 using MRTK2 with Unity and C#;
- Implemented animated point clouds, eye tracking, UI and UX elements, and HoloLens 2 compatible shaders;
- Organized and conducted subjective testing with 60+ participants;
- Collaborated with project partners and external institutions across Europe to produce five publications.

### University of Klagenfurt

Oct 2020 – Oct 2022

*Project Assistant, 5G Playground*

*Klagenfurt, Austria*

- Worked on the “Virtual Realities” use case, alongside finishing my Masters;
- Developed a Python webapp using Flask and deployed it at a 5G edge using NGINX;
- Ported a viewport prediction algorithm for 360° videos from MATLAB to Python using NumPy and SciPy;
- Modified an Android DASH 360° video client to reduce motion-to-glass latency by up to 62%;
- Wrote my Masters thesis and published one paper on this work.

### University of Klagenfurt

Oct 2020 – Jan 2021

*Tutor, Klagenfurt Coding Game Lab*

*Klagenfurt, Austria*

- Held bi-weekly Twitch streams as the host of the KCGL;
- Taught University students the basics of programming and game development;
- Made a basic 2D platformer in Unity and C#, covering physics, tilemaps, animations, audio, and much more.

## Education

---

### University of Klagenfurt - MSc Game Studies and Engineering

Oct 2018 – Apr 2022

*AI in Games, AR in Games, Computer Graphics, Virtual Ethics*

*Klagenfurt, Austria*

- Final Grade: 1.5 out of 4
- Awarded full fee rebate for four semesters (maximum allowed) because of excellent grades

### IIIT Una - BTech Computer Science and Engineering

Aug 2014 – May 2018

*Data Structures, Object-Oriented Programming, Software Design Patterns*

*Una, India*

- Final Grade: 7.5 out of 10

## Skills

---

### Technical

Experienced with Unity, C#, and MRTK2; Knowledgeable in ARCore, Unreal Engine, C++, Python, and Android; Experienced with Git (GitHub), Linux, and various IDEs; Base knowledge of JavaScript, .NET, and React.

### Research





I am comfortable translating theoretical research into practical code and applications. I have extensive experience in academic reading, writing, and peer-reviewing. I have created Python webapps, modified Android apps, and written software in Unity for AR HMDs for various research tasks.

### Languages

Hindi (native), English (C1), German (B1).

## Selected Projects







---

Subjective Testing Platform	A modular mixed reality testing platform made alone from scratch for HoloLens 2 using Unity and C#. The user-centric design allows researchers to import their own content and configure custom tests. The platform features eye-tracking, anchored UI, HoloLens-centric UX, point cloud playback, and other functionalities.	
Vis À Vis	3D first-person horror game developed using UE4 (C++ and BP). As the sole programmer, I designed and implemented the core gameplay systems, including the player controller, inventory management, dynamic trigger interactions, event sequences, and cutscenes.	
Car Parkour	3D multiplayer arcade-style racing game developed using Unity and C#. As part of a two-person team, I implemented the multiplayer functionality and some Rocket-League-style mechanics.	
SpellSlinger	Augmented reality tower defense game using Unity (C#) and Google ARCore. As the sole programmer on a 3-person team, I built the game's core mechanics, including object spawning triggered by real-world image tags, persistent object management, and the tower defense gameplay loop.	




## Dissemination and Outreach

---

### Publications

- M. Nguyen, S. Vats, X. Zhou, I. Viola, P. Cesar, C. Timmerer, H. Hellwagner, “*ComPEQ-MR: Compressed Point Cloud Dataset with Eye Tracking and Quality Assessment in Mixed Reality*,” in ACM MMSys 2024; 
- M. Nguyen, S. Vats, H. Hellwagner, “*No-Reference Quality of Experience Model for Dynamic Point Clouds in Augmented Reality*,” in ACM MHV 2024; 
- M. Nguyen, S. Vats, S. Van Damme, J. Van der Hooft, M. Torres Vega, T. Wauters, F. De Turck, C. Timmerer, H. Hellwagner, “*Characterization of the Quality of Experience and Immersion of Point Cloud Video Sequences through a Subjective Study*,” in IEEE Access 2023 Volume 11; 
- S. Vats, M. Nguyen, S. Van Damme, J. van der Hooft, M. Torres Vega, T. Wauters, C. Timmerer, H. Hellwagner, “*A Platform for Subjective Quality Assessment in Mixed Reality Environments*,” in QoMEX 2023; 
- M. Nguyen, S. Vats, S. Van Damme, J. van der Hooft, M. Torres Vega, T. Wauters, C. Timmerer, H. Hellwagner, “*Impact of Quality and Distance on the Perception of Point Clouds in Mixed Reality*,” in QoMEX 2023; 
- S. Vats, J. Park, K. Nahrstedt, M. Zink, R. Sitaraman, H. Hellwagner, “*Semantic-aware View Prediction for 360-degree Videos at the 5G Edge*,” in IEEE ISM 2022. 

### Dissemination, Teaching, and Awards

- I taught a 2-hour long lecture to Masters students on 2D game development with Unity and C#;
- I presented a video podcast alongside [Assoc. Prof. Dr. Mathias Lux](#), discussing the pros and cons of Unity vs Unreal Engine; 
- I have given 10+ talks and demonstrations between conferences and project dissemination events.
- “Breakup Bonanza” was selected to be showcased at the Austrian Cultural Forum in Warsaw during the “Wrangling Genre Complexity” event in April 2024;
- “Vis À Vis” has over 3k views and almost 1k downloads, and was played by numerous YouTubers; 
- My work with 5GPlayground Use Case “Virtual Realities” was nominated for the Futurezone Awards 2022 in the category “5G Innovation des Jahres”. 

## Hobbies

---

- D&D I am very passionate about TTRPGs, especially D&D 5e. I have run numerous one-shots and a few short campaigns. I am currently running a homebrewed mixture of the Planescape and Eberron settings for a party of 5.
- Blog Posts I write about hobby projects of mine, and a lot of other things [on my blog](#). I also like to write about my experiences during development and reflect on them [in my portfolio](#).