CHARLIE JOSHI

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EDUCATION

Abertay University   **Dundee, UK**
Master of Science (MSc) in Computer Games Technology; **GPA – 3.71 (Merit)**   Sept 2021-Oct 2022
Relevant Coursework: Games Programming, 3D Graphics Programming (DirectX11), Theory of Computation, Artificial Intelligence, User Experience/Human-Computer Interaction, Network Game Programming,

Cummins College of Engineering for Women   *Pune, India*
Bachelor of Technology (B. Tech) in Information Technology; **CGPA - 8.07 (First Class with Distinction)**   July 2017-June 2021
Relevant Coursework: Object-Oriented Programming, Analysis of Algorithms, Machine Learning, Artificial Intelligence, Data Structures, Information Retrieval, Cloud Computing, Big Data and Analytics, Computer Architecture, Database Systems

TECHNICAL SKILLS

Programming Languages*:* HTML5, CSS 3, JavaScript, C#, Java, C++, ReactJS, Python, MySQL, HLSL
Frameworks and Databases: SQL, DirectX11, IBM SPSS, WebRTC, AWS, OpenGL, MongoDB, DoTween, Flask, Android Studio
Tools and Libraries: Git, Figma, Unity Engine, Excel, VS Code, Balsamiq, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas, Matplotlib, Tableau, Blender, Unreal Engine

EXPERIENCE

Trans Game Dev   *Remote, Scotland*
Moderator and Community Organiser   Nov 2020 - present
- I am a moderator in a 12-person Community team with 4 specialisations (community moderation, content organising, website development and interviewing).
- Trans Game Dev is a global semi- professional community featured in GamesIndustry, GameJamPlus, Queer in Games, and safe space for 1,400+ Transgender Game Developers.
- I manage new member enquiries, designing and programming the new website, and work with both the administrators, other moderators to discuss behavior and feedback with members to maintain a healthy and safe environment.
- I also work with the community itself to deliver on the goals and shape what Trans Game Dev can be.

LimitBreak Mentorship   *Dundee, Scotland*
Mentee *(Figma, Unity, Visual Studio (C#), GitHub, Balsamiq, Excel)*   April 2022-Nov 2022
- Collaborated with mentor Marcus Skov to design two projects focused on UI design and programming for games, using industry best practices.
- Designed a bespoke colour-blindness accessibility tool in unity with colour selection using preselection modes and a custom colour picker. The tool works as a replacement for the standard colour-blindness filter provided by your operating system. [Link]
- Redesigned the inventory system from Zelda, while borrowing references from the inventory in Cult of the Lamb. Used Sprite Atlas for optimising sprite loading and the model view controller pattern for managing the inventory and inventory component features. [Link]

Paper Cutter Games   *Remote, Denmark*
Lead Programmer **"Project Filter"** *(C#, Unity, Git)*   Oct 2020 - Jan 2021
- Implemented the foundation for the character controller, environment interaction as well as the Enemy AI system.
- Set up the combat system and laid the foundation for an ability system and charge meter as well as the UI for the same.
- Used Git to commit code, created task-appropriate branches, and addressed code reviews. Helped flag and fix bugs present in the earliest iterations of the prototype.

Entrepreneur Cafe   *Pune, Maharashtra*
Core Community Organiser   May 2019 – May 2020
- Involved in brainstorming, planning, scheduling and executing the events held by the E-cafe Pune branch.
- Main tasks involved setting up the venue and reach out within the community and increasing networking.
- Ensuring sustainability and partnering with smaller businesses to help achieve this goal.
- Part of the decision process regarding branding and community outreach on social media

Meraklis (Now Metta Social)   *Pune, Maharashtra*
Junior Java Developer *(ReactJs, WebRTC, HTML, CSS, JavaScript, AWS, Git, Postman)*   May 2019 - Oct 2019
- Hired as an intern and trained in a full-stack developer capacity. My responsibility was to create a proof-of-concept application for the web-conferencing product being developed by the company.
- Provided an end-to-end solution (from wireframes to implementation) while ensuring that we were providing a low-latency application using WebRTC.
- Provided knowledgeable technical support and root cause analysis and collaborated with team members and clients as required to resolve requests/issues in a timely manner and ensure the proper documentation, notification, escalation, tracking, and follow-up of all incidents.

PROJECTS

Designing an accessible UI / UX framework to enhance player experiences within games [Link]   July 2022-Oct 2022
(Figma, Unity, Visual Studio (C#), GitHub, Balsamiq, Excel, Quantitative analysis)

- Created an extensible tool to allow users to customise colour options of all elements within the game using a bespoke colour selection system.

- Features provided for the base game: Procedural rooms (Similar to Binding of Isaac), AI enemies, random spawning of items and enemies within the generated rooms, and a powerup system.
- Designed the UI and wireframes in Figma and Balsamiq, created User Personas and storyboarding for potential users and created a unique storyline for each user group based on the type of gameplay experience, colour blindness and other social factors as well.
- Created a survey, conducted user tests and subsequent data analysis (Qualitative analysis and SUS test) as well as presenting the data metrics for the final dissertation presentation. Achieved a System Usability Score of 83.75%

Procedural Graphics Maze Mini Game [Link]   April 2022-May 2022
(C++, DirectX11, DirectX toolkit, HLSL, 3D Maths, Visual Studio (C++), GitHub)
- Programmed procedurally generated content using C++, DirectX11 and the DirectX toolkit to create a 3D game.
- The mini-game included a minimap, score system, post-processing, terrain generation and a procedurally generated maze using cellular automata
- Also implemented an A* search algorithm to check if the maze could be solved and for post-processing, the effects chosen were the bloom and blur effects.

Deep Q-learning Network Tetris [Link]   April 2022-May 2022
(Python, OpenCV, Pygame, Tensorboard, Matplotlib, GitHub)
- Set up a deep q-learning agent in Python, and trained models to play Tetris based on specific parameters outlined within the agent.
- Programmed the game of Tetris in Pygame to be played by both the player and the simulation bot.
- Finally extracted the core values of the AI models during the tests to Tensorboard to be evaluated by a custom function written to cross-validate the models generated during the training phase.

Battle an AI Snake [Link]   Sept 2022-April 2023
(HTML, CSS, JavaScript, AI, DOM manipulation, Open source)
- Classic Snake game with an added AI Snake player. A modern take on an arcade classic.
- Uses OOP fundamentals and DOM manipulations and is a responsive application available for both PC and mobile devices.

"Monolith" University Group Project [Link]   Feb 2022-May 2022
(Figma, Unity, Visual Studio (C#), GitHub)
- Sole programmer with a team of second-year students comprised of artists and level designers.
- Programmed and designed the entirety of the UI, environment, and mechanics present within the game (with console support).
- Designed and implemented a custom physics engine and separated controllers for player, character, and animations. Abilities and mechanics were programmed to be dynamic and could be toggled on/off through the inspector.
- Wrote a rigging guide for Unity 2d animations later used for enemy animations.
- Conducted Bug tests and ensured that project deliverables were achieved within time with clear documentation.

Portfolio Website [Link]   Sept 2022-May 2023
(HTML, CSS, JavaScript, Figma, Balsamiq, Open source)
- This is my personal portfolio website as a developer and games programmer. It highlights myself as a person and highlights my best work too. It has been optimised for both PC and mobile devices and contains wireframes, modals, animations and a responsive layout.

DemonSlayerFlix - A Netflix frontend clone [Link]   May 2023-May2023
(ReactJs, Firebase Hosting, Open source)
- This is DemonSlayerFlix, a frontend clone of Netflix's home page made just for the amazing anime series Demon Slayer.
- It is built with React JS and uses the TMDB API to pull in data and images.
- The project uses Firebase for hosting and analytics.

Inventory Design experiment (UI optimisation and MVC pattern) [Link]   Oct 2022-Jan 2022
(Figma, Unity, Visual Studio (C#), GitHub)
- Experimented with creating two different inventory layouts to handle different quantities of items. Designed and prototyped this in Figma.
- Created a mini-game with audio, animations, and an enemy with projectiles. Added a shader graph for handling hit effects.
- Used the Sprite Atlas to optimise the loading of items into the scene and tested out the performance difference.
- Used scriptable objects and the model view controller pattern for managing the inventory and inventory component features, items can be equipped and dropped, and audio effects are attached as well. UI for health was also added as well.
- The second inventory was to optimise the first approach and improve the UI design for the same making use of the references chosen (Zelda, Cult of the Lamb)

PUBLICATIONS

- ***"A Pedagogical Adoption of Game Theory to Finance Technology in Big Data Analytics",*** 5th International Conference on Trends in Electronics and Informatics (ICOEI) · Jun 18, 2021 [Link]
- ***"Emergence and Convergence of AI, Blockchain and IoT",*** International Journal of Future Generation Communication and Networking Vol. 13 No. 4 (2020) · Feb 11, 2021 [Link]

AWARDS AND LEADERSHIP

- I.T department representative @Society of Women Engineers in India
- Smart India Hackathon Internal Round Winner Issued by the Government of India · Jan 2020. Led a team of five, to build an Implementation of Electronic Health Records using Blockchain for a 48-hour Hackathon. **Achieved First Place.**
- Core committee member for the Women In Data Science's (WiDS) Pune, a Stanford University Initiative [Link]   Dec 2018-March 2020