

JOSH CARATELLI

Software Engineer

I'm a veteran engineer who leads proactively and with empathy. I strive to write clean, cache friendly code and make unforgettable player experiences with an incredible team.

☎ (+61) 405 969 276

✉ joshcaratelli@gmail.com

🌐 joshcaratelli.com

✓ References available on request

EXPERIENCE



Gravity Well

ENGINEERING DIRECTOR

Aug 2024 – Present

ENGINEERING LEAD

Jul 2023 – Aug 2024

SENIOR ENGINEER

Aug 2022 – Jul 2023

★ NEW AAA IP | 3RD PERSON COOP | UNREAL ENGINE 5

XB1 | PS5 | PC | SWITCH 2 | STEAM DECK

Funding lost mid production, C++ | C# | Angelscript (Modified) | Python | Exp

TECHNICAL LEADERSHIP

- > Lead an exceptional team of engineers. Managed project scheduling, task triage, hiring + career growth
- > Just prior to funding loss I was moved to the project leadership group to help steer the game and studio
- > Set up studio best practices for: Engineering, physics, CI / CD / smoketest, Perforce, "Coders Hour"
- > Milestone release management, responsible for standing up and maintaining Perforce branches

CORE UE5 MODIFICATIONS

- > Text Based Assets: Serialized Blueprints + Data Assets to be human readable, diffable and mergeable. This supported concurrent work on these assets by the team and easy branching
- > Physics: Integrated Havok Physics, multiplayer spring system (airplane towing + balloon platforms), convex collision component, player interactions
- > AI: Modified Recast to allow pathfinding on moving objects and platforms with an offline baked navmesh

SYSTEMS ENGINEERING

- > Level streaming bundles, co-op puzzle switches, stood up co-op revive system, anti-leak watermarking, narrative bark support (fuzzy pattern matching), CPU performance

TOOLS / BUILD

- > Supported Jenkins CI / CD pipeline to use Discord bots for reminders, and to automatically smoketest and generate hourly, ready to play multiplayer steam builds
- > Handled Unreal Engine upgrades, modified UBT to reduce compile times (~28% decrease / ~3 mins per compile)
- > Deprecated asset system, 'Blutility' toolbar, editor only mesh component, camera toolbar, automatic patch notes, "Scratch" checkout, Editor UX (modelling tool, general editor UX)



Sledgehammer Games (Activision)

SENIOR SOFTWARE ENGINEER

Mar 2022 – Jul 2022

SOFTWARE ENGINEER

Jun 2017 – Mar 2022

★ CALL OF DUTY: VANGUARD

XS | PS5 | XB1 | PS4 | PC

Shipped Late 2021, C++ | LUA | Python | C# | GSC

DESTRUCTION STRIKE TEAM MEMBER

- > Part of a core engineering effort to implement fine grain destruction, a marquee feature for the title.
- > Destructible asset pipeline, rigid body optimization and improved client only clutter to assist with destructible atmosphere

PHYSICS ENGINEERING

- > Forces (radial force occlusion, weapon muzzle and bullet impact forces), ragdolls, cloth and further physics support for hierarchical "composite" model asset type I previously co-authored

CORE GAMEPLAY SYSTEMS

- > Extensive work to save a pivotal Single Player level from being cut on two occasions
- > Killcam, weapon caliber damage multipliers, weapon mounting / mantling with destruction

MISC.

- > Extensive onboarding for all disciplines, a regular point of contact for Call of Duty Engineering
- > Single Player NPC developer names tooling and implementation, employee commemoration planning and patch notes assistance

★ CALL OF DUTY: WARZONE / MODERN WARFARE

★ CALL OF DUTY: MODERN WARFARE

XB1 | PS4 | PC

Shipped Early 2020 / Late 2019, C++ | LUA | Python | C# | GSC

Note: I was on loan to Infinity Ward for Modern Warfare and Warzone's production

LARGE MAP TECHNOLOGY STRIKE TEAM MEMBER

- > Helped take the franchise from small player counts to support 150+ players in a large play space, from publisher technology green-light to ship
- > Automatic Proxy LOD generation asset pipeline, including Proxy LOD thermal vision support and continuous integration (CI / CD) support
- > Spatial Grid based asset streaming, focusing on long range sniper scopes
- > Additional work on impostor cards and "Submap" workflow

CORE ENGINEERING

- > Co-authored a hierarchical "composite" model asset type to improve art design workflow for moving models and vehicles
- > GPU vertex cache optimization for current generation platforms



★ CALL OF DUTY: WWII

XB1 | PS4 | PC
Shipped Late 2017, C++ | LUA | Python | C# | GSC

CORE ENGINEERING

- > Joined just before E3 and provided core engineering programming support for Singleplayer, Multiplayer and Co-Op (Zombies)
- > Support for "Headquarters" social space, a marquee feature for the title
- > Resolving Microsoft XR's and Sony TRC's to ensure title submission compliance

LIVE OPS

- > Moved to Live-Ops and Build Management post launch due to favorable time zones
- > Assisted with in-game updates and became the sole build engineer for 1st Party Title Updates

★ MISC. RESPONSIBILITIES

- > As one of eight founding members, I helped plan and heavily contributed to onboarding for the Melbourne studio expansion to 150+ developers over two years
- > Author of a Slackbot Framework which is still widely used across all of Activision for: JIRA task creation, anniversary and promotion celebrations and hosting "Ask Leadership" sessions
- > Culture Committee Member, Fire Warden and First Aider



Big Ant Studios

JUNIOR ENGINEER
Jan 2016 – Jun 2017

★ RUGBY LEAGUE LIVE 4

XB1 | PS4 | PC
Shipped Mid 2017, C++ | LUA | Python | C#

★ DON BRADMAN CRICKET 17

XB1 | PS4 | PC
Shipped Late 2016, C++ | LUA | Python | C#

★ CASEY POWELL LACROSSE 16

XB1 | PS4 | PC
Shipped Early 2016, C++ | LUA

SYSTEM / GENERALIST ENGINEERING

- > Ownership of audio (SFX and commentary), in-game UI and meta-game (match objectives and statistics) systems programming
- > Additional tools, gameplay, physics, rendering and core system tasks
- > Microsoft XR's (including XBOX Leaderboards) and Sony TRC's to ensure submission compliance



Double Mercury Entertainment

FOUNDER / PROGRAMMER
Jan 2015 – Jan 2016

★ SMOG GAME

iPhone / iPad
Shipped Late 2015, Unreal Engine 3 (Licensee) UnrealScript | Obj-C

PROGRAMMING, CO-DESIGN AND BUSINESS DEVELOPMENT

- > Co-design and implementation of all game features, analytics and interstitial ad middleware
- > Responsible for all business development related tasks as Company Director. Predominately dealt with contracts for Epic Games, Apple, PwC Australia and communicating with media outlets

EDUCATION

RMIT UNIVERSITY
2015 – 2018

BACHELOR OF COMPUTER SCIENCE | 3.4 GPA (Distinction)

Completed majority of course through an accelerated high school program and concurrently studied and worked fulltime in the games development industry. I was also regularly used for marketing materials and was the featured student on the University's course guide front cover

SKILLS

LANGUAGES

- C / C++
- LUA
- C#
- Python
- GSC (Proprietary)

TECHNOLOGIES

- Unreal Engine 5 / 4 / 3
- Havok Physics
- Defold
- Jenkins
- Call of Duty (Proprietary)

PM TOOLS

- JIRA
- Favro
- Hansoft
- Trello

VCS

- Perforce
- Git
- Subversion

SHIPPED GAME EXPERIENCE

CORE / ENGINE

AUDIO

SYSTEMS

LIVE-OPS

PHYSICS

BUILD/ CI / CD

ASSET PIPELINE

IN-GAME UI

MULTIPLAYER

TOOLS