SAM ZAKERS

CONTACT

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KEY SKILLS

- Programming game features and systems
- Advanced mathematical toolset
- Object Oriented Programming
- Set up & management of a shared code base (Perforce)
- Innovative, systems thinker
- Creative and collaborative team player
- Confident communicator

MATHS

- Chaos and Dynamical Systems
- Coordinate Transformation
- Arbitrary Geometry
- Lagrangian & Hamiltonian Mechanics and Analysis
- Fundamental Algebra
- Applied Mathematics

LANGUAGES

- C++
- Python
- GD Script

KEY TOOLS

- Unreal
- Blender
- Godot
- Perforce
- Curl
- Nlohmannjson
- NumPy
- Pandas
- wxWidgets

Gameplay programmer with strong maths and physics skills. Creative, and collaborative. Passionate about gaming and design.

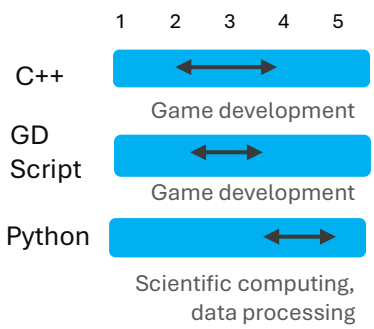
Physics graduate, with electives in advanced theoretical modules such as Chaos, Lagrangian Mechanics and 'Radiation and Relativity'. A divergent, creative and analytical thinker bringing fresh perspectives to gaming. Thrives on working in a team, facing into challenges, analysing complex systems and collaborating to find innovative solutions.

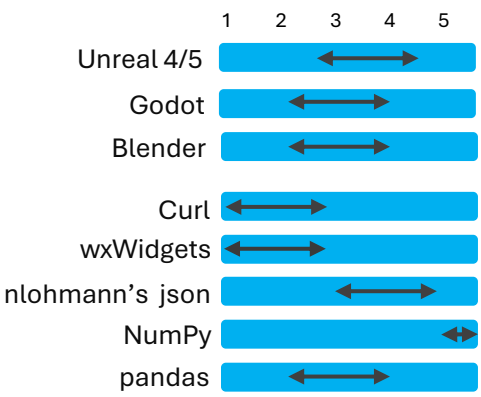
Key Skills and Attributes

- Programming game features and systems
  - Employing theoretical concepts to programming challenges, breaking boundaries and pioneering ambitious gameplay.
  - Deep knowledge of Physics and Maths underpinning approaches to problem solving to produce high-quality solutions to design concepts.
- Advanced mathematical toolset across a range of specialities
  - Physics (Labs) degree combining theoretical based modules and complex abstract concepts with practical applications and skills.
  - Advanced concepts in mathematics, acquired pursuing electives from the theoretical physics course.
  - Ability to sort, manage and analyse large sets of data in extended time series, using Python.
  - Confident in statistical and probabilistic calculations from core modules and regular practical work.
- Object Oriented Programming
  - Capable, self-taught programmer, in line with the innate disciplines required for Physics degree.
- Set up & management of a shared code base (Perforce)
  - Familiar using multiple version control tools.
  - Set up of a shared, version-control server for maintaining game assets, using Perforce.
- Innovative systems thinker
  - Logical mind-set and problem solving.
  - Skilled in approaching large inter-related, dynamic, complex problems.
- Team Player
  - Bringing together small agile development teams (scrums)
  - Practiced leader and team player in a variety of settings
    - Working with fellow cadets and as a Non-Commissioned Officer leading a platoon in Combined Cadet Force (CCF)

Languages and Key Tools – Advanced Beginner to Competent

Self-evaluated proficiencies; the scale 1-5 represents the skills between 'advanced beginner' and 'competent' levels in line with industry guides.





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EDUCATION

University of Birmingham, Bachelor of Physics (Hons)
09/2020 – 06/2023

Ellesmere College
09/2011 to 07/2020

A Levels: Physics A*, Mathematics A, Chemistry A
Practical Endorsement in Physics & Chemistry, Pass

Additional Qualifications:

- AQA Media Studies; Unit 1 45 D, Unit 2 111 A*
- AQA Spanish M
- English Speaking Board (ESB) Level 2 'Merit +', Level 3 Certificate in Speech (Grade 8) Distinction
- BTEC Level 2 Extended Diploma in Teamwork and Personal Development in the Community
- ILM Level 3 Award in Leadership and Management
- Extended Project Qualification (EPQ) D
- Award in Personal Finance (APF1) Principles of Money and Money Management Distinction
- 11 GCSEs

Other Achievements:

- Ellesmere College Mark Willis Science Prize 2020 (awarded to the highest average mark across two sciences at A-Level)
- Represented school in rifle shooting including the Ashburton Shield competitions at Bisley National Shooting Centre
- Represented school at inter-school STEM competitions.

"Sam has put his passion for Physics at the forefront of his learning and has competed successfully in STEM challenges as well as organising work experience to enhance his knowledge. This has given him insight into the science being used to help make a difference in the world."

Headmaster's Testimonial

ILLUSTRATIVE PROJECTS

World Driver

- For the first time players can drive the entire globe. Travel across real roads at real scales with a suite of flexible tools. This offers unparalleled freedom to explore with options to participate in both official and community leaderboards.
- Be a street racer, record holder, curious explorer or course mapper for your circle; it's your world to be discovered.
- By streaming OSM data through the Overpass API we remove limitations on scale to provide a true-to-life, open world driving experience. Written in C++ for maximum performance, employing curl for speedy and secure data streaming.

Wizards & Ninjas

- Breaking free from the paradigms of button-based inputs into the next step of VR gameplay where **YOU** are the controller. Innovative gameplay is delivered via intuitive visual and physical hand signs and brings a new level of immersion to the VR market.
- A team of highly skilled individuals, bringing multiple talents, enabled us to tackle this ambitious game. Key building blocks include: the VR Player controller, AI Behaviour and VFX.
- The hand sign system consists of a detection and a recognition component and records the relative physical orientation of the hand. By chaining hand signs in a correct order, the recognition component triggers visual cues, enable the player to cast spells
- The AI component, utilises the powerful behaviour tree system provided by unreal engine. This grants NPCs intelligent reactive behaviour.
- Inspiration was about reducing barriers to immersive gameplay by removing traditional controls and leveraging physical actions to play.

Wizard on a Skateboard

- Taking the best of skateboarding games and applying them to the classic 2D platformer formula to offer a coffee-break-length moment of magic.
- Build your score using a range of tricks and techniques with the responsive and tight controller scheme.
- Structured around fast-paced engaging levels with the opportunity to record and compare your times. Improve your skills to reach the best score possible and discover the story as you play.
- The solution includes a suite of the essential features including, Coyote Time, 2D sprite passthrough with collisions, static and moving hazards and interactive scenery elements.
- With a dynamic scoring system and custom movement mechanics its about fast-paced, risk-taking gameplay that rewards player reactivity.

I have always been curious about the 'whys', behind every 'how'. A Physics degree gave me a strong set of analytical skills... a set of underlying rules that underpin a unique approach to developing solutions...all supported by the fundamental knowledge of advanced maths and physics. Since graduating, I work developing games, across the extent of the development pipeline.
I specialise in programming, focusing on gameplay elements. I have a passion for constructing experiences I can share with others. I enjoy working with people and at places that encourage and foster creativity, collaboration and teamwork.