

Research Fellow/Engineer (Metaverse App/Engine)  
Singapore Institute of Technology

Direct Link: <https://www.AcademicKeys.com/r?job=244510>

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Posted Sep. 9, 2024, set to expire Jul. 5, 2025

**Job Title** Research Fellow/Engineer (Metaverse App/Engine)  
**Department** Centre for Digital Enablement  
**Institution** Singapore Institute of Technology  
Singapore, , Singapore

**Date Posted** Sep. 9, 2024

**Application Deadline** Open until filled

**Position Start Date** Available immediately

**Job Categories** Research Scientist/Associate

**Academic Field(s)** Computer Science

**Job Website** <https://careers.singaporetech.edu.sg/cw/en/job/498754/research-fellowengineer-metaverse-appengine>

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**Job Description**

## Research Fellow/Engineer (Metaverse App/Engine)

**Job no:** 498754

**Department:** Centre for Digital Enablement

**Contract type:** Contract

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As a University of Applied Learning, SIT works closely with industry in our research pursuits. Our research staff will have the opportunity to be equipped with applied research skill sets that are relevant

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to industry demands while working on research projects in SIT.

The primary responsibility of this role is to deliver on an industry innovation research project where you will be part of the research team to develop software platforms for supporting multi-user AR/VR applications.

### Key Responsibilities

- Participate in and manage the research project with Principal Investigator (PI), Co-PI and the research team members to ensure all project deliverables are met.
- Undertake one of the three responsibilities:
  1. Develop an interactive metaverse application for online education, team collaboration, and workplace training with a focus on real-time interactive simulation. (app developer)
  2. Design, build, and implement a multiplayer architecture and backend services for a real-time AR/VR multiplayer system. (network engineer)
  3. Design, build, and implement the the game engine for both client and server. (game engine software engineer)
- Perform testing
- Perform documentation and optionally publishing paper to international conferences/journals.
- Carry out Risk Assessment, and ensure compliance with Work, Safety and Health Regulations.
- Work independently, as well as within a team, to ensure proper operation and maintenance of equipment.

### Job Requirements

- A degree in Computer Science or relevant field
- Experience with software development life cycle
- For app developer role:
  - o Strong knowledge in C++ and/or Javascript for 3D/VR applications (e.g., babylon.js, A-Frame, etc.) will be an advantage
  - o Experience in developing XR app for teaching & learning/training.
  - o Experience developing optimized modules in C#/C++ within Unity and/or Unreal Engine
  - o Experience with database management systems
- For network engineer role:
  - o Experience in computer networking, multiplayer architecture, and backend services
  - o Experience in connecting backend to various internal and external services and microservices.
  - o Deep knowledge in computer network protocols (e.g., TCP/IP, UDP, and other relevant network

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protocols).

- o Expertise in handling latency, packet loss, and synchronization issues.
- o Expertise in designing a scalable server architecture for handling thousands to millions of concurrent players, Load balancing, auto-scaling, and server instance management.
- o Expertise in securing a multiplayer game network system.
  - Knowledge of encryption techniques to ensure data in transit remains confidential.
  - Prevention measures against common threats like DDoS attacks, SQL injection, and cheating.
- o Experience in multiplayer game services such as Azure PlayFab, AWS GameLift, Google Cloud Servers, and other similar services.
- o Strong knowledge in C++ will be an advantage.
- o Experience with database management systems
- o Familiarity with core engine technologies such as engine architecture and streaming.
- o Familiarity in developing optimized modules in C#/C++ within Unity and/or Unreal Engine.
- For game engine software engineer:
  - o Strong knowledge in C++ and/or Javascript for 3D/VR applications (e.g., babylon.js, A-Frame, etc.) will be an advantage
  - o 3D engine development experience
  - o Familiarity with core engine technologies such as engine architecture, multi threading, streaming, computer graphics and advanced real-time rendering techniques
  - o Experience developing optimized modules in C#/C++ within Unity and/or Unreal Engine
  - o Experience with database management systems

### Key Competencies

- Strong competency in programming, AR/VR, and/or interactive application engine.
- Able to build and maintain strong working relationships with people within and external to the university.
- Self-directed learner who believes in continuous learning and development
- Proficient in technical writing and presentation
- Possess strong analytical and critical thinking skills
- Show strong initiative and take ownership of work

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**Advertised:** 09 Sep 2024 Singapore Standard Time

**Applications close:** 31 Dec 2024 Singapore Standard Time

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**Contact Information**

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

**Contact**

Singapore