

Research Fellow/Engineer (Multiplayer backend  
architecture) - BT2  
Singapore Institute of Technology

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Posted Sep. 26, 2023, set to expire Jul. 5, 2024

**Job Title** Research Fellow/Engineer (Multiplayer backend architecture) -  
BT2

**Department** Infocomm Technology

**Institution** Singapore Institute of Technology  
Singapore, , Singapore

**Date Posted** Sep. 26, 2023

**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/498519/research-fellowengineer-multiplayer-backend-architecture-bt2>

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**Job Description**

## Research Fellow/Engineer (Multiplayer backend architecture) - BT2

**Job no:** 498519

**Department:** Infocomm Technology

**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 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 these responsibilities in the project:
  - Primary responsibility: design, build, and implement a multiplayer architecture and backend services for a real-time AR/VR multiplayer system.
  - Other possible responsibilities:
    - Design and develop AR/VR software solutions for online education, team collaboration, and workplace training with a focus on real-time interactive simulation.
    - Design and implement spatial interactions using 3D game engines, modelling animation tools and shader programming.
  - 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 in computer networking, multiplayer architecture, and backend services
- Experience in connecting backend to various internal and external services and microservices.
- Deep knowledge in computer network protocols (e.g., TCP/IP, UDP, and other relevant network protocols).
- Expertise in handling latency, packet loss, and synchronization issues.
- Expertise in designing a scalable server architecture for handling thousands to millions of concurrent players, Load balancing, auto-scaling, and server instance management.
- Expertise in securing a multiplayer game network system.
  - Knowledge of encryption techniques to ensure data in transit remains confidential.

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- Prevention measures against common threats like DDoS attacks, SQL injection, and cheating.
- Experience in multiplayer game services such as Azure PlayFab, AWS GameLift, Google Cloud Servers, and other similar services.
- Strong knowledge in C++ will be an advantage.
- Experience with database management systems
- Familiarity with core engine technologies such as engine architecture and streaming.
- Familiarity in developing optimized modules in C#/C++ within Unity and/or Unreal Engine.
- Experience with software development life cycle.

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**Advertised:** 26 Sep 2023 Singapore Standard Time

**Applications close:** 31 Oct 2023 Singapore Standard Time

### Contact Information

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

### Contact

Singapore