

**Research Engineer - LLM-based chatbot (NPC)**  
**Singapore Institute of Technology**

Direct Link: <https://www.AcademicKeys.com/r?job=248457>

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Posted Nov. 8, 2024, set to expire Jul. 5, 2025

**Job Title** Research Engineer - LLM-based chatbot (NPC)  
**Department** Infocomm Technology  
**Institution** Singapore Institute of Technology  
Singapore, , Singapore

**Date Posted** Nov. 8, 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/498800/research-engineer-llmbased-chatbot-npc>

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**Job Description**

## **Research Engineer - LLM-based chatbot (NPC)**

**Job no:** 498800

**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

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to industry demands while working on research projects in SIT.

The primary responsibility of this role is to advance an industry-focused research project by developing and optimizing an LLM-based chatbot specifically designed for the hotel industry, delivering innovative solutions for guest interaction and data handling to meet industry standards and drive the organization's technological edge.

### **Key Responsibilities:**

#### **1. LLM Chatbot Development and Optimization**

- Design, develop, and maintain an advanced LLM-based chatbot utilizing a multi-agent approach, specifically tailored to the unique needs of the hotel industry.
- Implement solutions for effective data handling, conversation history tracking, and response adaptation to enhance the chatbot's relevance, accuracy, and safety in real-time interactions.

#### **2. Technical Support and Integration Assistance**

- Provide hands-on technical support to collaborating partners, ensuring seamless integration of the chatbot into existing hotel systems.
- Respond to partner feedback by troubleshooting and implementing updates to continually improve chatbot functionality and user experience.

#### **3. Collaboration on Innovative Research and Development**

- Work closely with students on LLM-related projects, focusing on the design of novel chatbot solutions that prioritize data security and sensitive information handling within the hotel industry.
- Contribute to developing new methodologies that enhance chatbot capabilities while addressing industry challenges in privacy and data protection.

#### **4. Project Coordination and Reporting**

- Work under the guidance of the Principal Investigator (PI) to ensure project milestones are met, maintaining clear and regular communication on progress, challenges, and future needs.
- Document development processes, maintain records of project achievements, and prepare reports as needed to support project goals and stakeholder updates.

### **Job Requirements:**

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### 1. Education and Knowledge

- Bachelor's or Master's degree in Computer Science, Artificial Intelligence, Data Science, or a related field.
- Strong knowledge experience with Large Language Models (LLMs), preferably applied in a business or industry context.
- Familiarity with multi-agent systems, chatbot frameworks, and machine learning techniques.
- Demonstrated experience in collaborative research or development projects.

### 2. Technical Skills

- Proficiency in programming languages such as Python, and experience with LLM-related libraries and tools (e.g., Hugging Face, PyTorch, TensorFlow).
- Experience with chatbot development, deployment, and optimization, including integration with partner systems.
- Knowledge of conversational AI best practices, including techniques for maintaining conversation history, data handling, and adaptive response mechanisms.

### 3. Personal Qualities

- A passion for innovation and a strong desire to create and refine new technologies, particularly in AI-driven solutions for real-world applications.
- Ability to think creatively and proactively solve complex problems while maintaining a high attention to detail.

### Key Competencies:

#### 1. Innovative Thinking and Problem Solving

- Ability to approach complex challenges with creative solutions, particularly in applying LLM technology to new and specialized industry applications.

#### 2. Collaboration and Communication

- Strong interpersonal and communication skills to effectively collaborate with technical and non-technical stakeholders, including partners, students, and team members.
- Capability to translate technical concepts for diverse audiences and incorporate feedback into ongoing development.

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### 3. Technical Proficiency

- Skilled in deploying, fine-tuning, and troubleshooting chatbot systems, with a focus on ensuring functionality, accuracy, and user satisfaction.
- Ability to adapt and scale solutions to address evolving requirements and maintain best practices in data handling and security.

### 4. Adaptability and Continuous Learning

- Openness to learning new tools and technologies in the rapidly evolving field of LLMs and AI.
- Ability to stay updated on industry trends and integrate relevant advancements into project work.

### 5. Passion for Innovation

- Strong enthusiasm for creating new, impactful solutions and contributing to advancements in conversational AI for the hotel industry.

## Major Challenges:

### 1. Balancing Innovation with Practicality

- Designing a cutting-edge LLM chatbot that meets high industry standards for innovation, while ensuring that it remains functional, efficient, and practical for real-world use in the hotel industry.

### 2. Data Privacy and Security

- Ensuring compliance with strict data privacy regulations and implementing robust security measures to protect sensitive customer information, especially given the hospitality sector's unique data handling needs.

### 3. Technical Integration with Partner Systems

- Addressing compatibility and integration challenges when embedding the chatbot into diverse hotel management systems and workflows, requiring close coordination and technical support.

### 4. Adapting to Evolving Industry Needs

- Continuously refining the chatbot to align with changing requirements, including adapting to feedback from partners and staying responsive to emerging trends and user expectations in the

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hospitality industry.

**5. Maintaining High-Quality User Interaction**

- Balancing response accuracy and relevance while preserving a conversational, user-friendly experience, which is especially challenging in complex, multi-turn conversations.

**6. Resource and Time Constraints**

- Achieving project milestones within the one-year contract period, while managing the technical complexities and scope of multi-agent LLM development under limited resources.

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**Advertised:** 08 Nov 2024 Singapore Standard Time

**Applications close:** 31 Jan 2025 Singapore Standard Time

**Contact Information**

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

**Contact**

Singapore