

## **Backend Engineer Intern at AIDF-CRI**

### **Background**

The Asian Institute of Digital Finance (AIDF) is a university-level institute in NUS, jointly founded by the Monetary Authority of Singapore (MAS), the National Research Foundation (NRF) and NUS. AIDF aspires to be a thought leader, a Fintech knowledge hub, and an experimental site for developing digital financial technologies as well as for nurturing current and future Fintech researchers and practitioners in Asia. The Credit Research Initiative (CRI) is a non-profit undertaking under the AIDF. Pioneering the "public good" credit risk measures, the initiative is committed to advancing big data analytics and providing directly useful credit intelligence to academic and professional communities.

Moreover, AIDF-CRI is dedicated to staying updated with the latest trends and technologies, especially for AI and LLMs. We are currently in the process of productionizing an LLM-driven application system to enhance and diversify our credit solutions. This includes redesigning, testing, and improving the backend framework.

### **Responsibilities**

AIDF-CRI is actively seeking candidates with a deep passion for backend development. The selected candidate will play a key role in transforming an LLM-based application prototype into a fully commercial product by upgrading our backend to a professional, market-ready level that delivers an exceptional user experience.

Particularly, the responsibilities will include:

- **Backend Development**
  - Design, develop, and maintain scalable and secure backend systems, focusing on performance, reliability, and security.
  - Develop RESTful APIs based on feature requirements to better integrate LLM report generation into the system.
  - Design and develop scalable services to support various features, managing asynchronous tasks and handling varying request volumes from multiple services.
- **Team Collaboration**
  - Contribute to full-stack development efforts by integrating cutting-edge technologies into the backend, facilitating the generation and manipulation of complex reports.
  - Collaborate with front-end developers, AI engineers, and other stakeholders to ensure seamless integration of backend logic with the frontend and AI-driven services.
- **Optimization and Testing**
  - Write and maintain unit, integration, and performance tests to ensure system reliability and resilience.
  - Collaborate with the DevOps team to containerize applications using Docker and orchestrate services via Kubernetes.
- **Documentation**

- o Maintain comprehensive documentation of backend processes, system architecture, and database schema to promote knowledge sharing and ensure smooth onboarding for new team members.

### **Minimum Requirements**

- Preferably major in the areas of computer science/engineering or similar discipline.
- Familiar with at least one programming language (Python, Java, Golang).
- Familiar with web application development and experience in a modern web framework (e.g Django, FastAPI, SpringBoot, Gin)
- Understanding of RESTful APIs design principles and practice.
- Experience working with relational and non-relational database servers, including MySQL and MongoDB, is highly desirable.
- Familiarity with version control systems like Git.
- Strong analytical and problem-solving skills, with the ability to troubleshoot and resolve issues effectively.
- Excellent communication and documentation skills, both written and verbal, to collaborate effectively with team members and stakeholders.

### **Bonus Skills**

- Experience with Docker, Kubernetes and Redis.
- Interests in microservices.
- Familiarity with caching mechanisms and caching implementation.
- Understanding of parallelism, locking, synchronization, and race conditions in software development.
- Ability to think creatively and propose innovative solutions to complex problems.
- Portfolio or examples of previous back-end work, including school projects or internships.
- Exposure to cloud services like AWS, Azure, or Google Cloud for backend deployment.