Job Description:

The Department of Civil and Environmental Engineering at the National University of Singapore (NUS) is looking to recruit a Research Engineer to work on a research project developing a full stack solution for structural BIM submissions. This project aims to develop a solution that automatically checks the compliance of structural BIM submissions against existing Singapore design codes.

The candidate is expected to work on designing the overall system, liaising with vendors, lead a team of interns, and developing advanced predictive techniques to support the system. Salary and benefits are competitive and commensurate with the candidates' experience.

Responsibilities:

- Develop and Maintain a serverless cloud-based overall solution.
- Develop GraphQL endpoints using AWS AppSync.
- Conduct and prepare feasibility study and technical specifications and end user system job instructions documents.
- Develop Screen Designs based on User Requirements utilizing Figma.
- Develop and deploy docker containers using Amazon Elastic Container Services with docker-compose and Dockerfile.
- Prepare CICD Pipeline using AWS Services.
- Develop Next.JS App with App Router, Tailwind CSS and Typescript, in combination of AWS Amplify, Amazon S3, AWS Cognito, AWS AppSync, AWS Lambda, Amazon API Gateway.
- Develop Libraries and Dependencies using C#, Python, JavaScript, and TypeScript
- Develop and Prepare Database Design using MongoDB and DynamoDB
- Prepare Functional and Non-Functional Requirement Documentation.
- Develop Structural Analysis Schema for the Built Environment in relation to BIM.
- Develop 3D Model Viewer using ThreeJS and OpenBIM Components for Web Application.
- Lead a team of interns to develop solution.

Job Requirements:

- Possess a recognised Bachelors in Engineering, or related field.
- At least a post-graduate diploma and/or degree in computing in related fields
- At least one year's experience in a software development role
- Excellent written and oral communication skills
- Open to Fixed-Term Contract
- Experience with using AWS Services, specifically AWS Amplify, Amazon S3, AWS Cognito, AWS AppSync, AWS Lambda, Amazon API Gateway, Amazon Elastic Container, AWS Serverless Application Model.
- Experience with NoSQL and Graph Databases specifically MongoDB and DynamoDB.
- Experience with Git and Git related automation workflows.
- Experience with developing Entity Relationship Diagrams, Activity Diagrams, Use Case Diagram, and relevant Software Development Life Cycle processes.
- Experience with CSS Frameworks, specifically Tailwind CSS.

- Experience with Building Information Modeling and Built Environment Related Solutions.
- Experience with "Three.JS" for 3D Model Viewer Development for Web Applications.
- Experience with "OpenBim Component" (Typescript Implementation).
- Experience with Jira, Confluence, Draw.IO and other relevant software development documentation tools.
- Strong knowledge on Industrial Foundation Classes Schema (IFC) and related OpenBIM Standards.
- Strong knowledge of object-oriented programming principles and design patterns.
- Knowledge on Continuous Integration and Continuous Development, Docker Containers and DevOps
- Civil Engineering/Built Environment related experience, practices and workflows will be an added bonus.

More Information

- Location: Kent Ridge Campus
- Organization: College of Design and Engineering
- Department: Civil and Environmental Engineering