Role Definition
Job Title: Design Systems Analyst (Applied R+D – Digital Twin Specialist)
Reporting to: Head of Applied Research and Development

The Applied Research + Development team produces cutting-edge technologies, including Smart Building and Smart City and Digital Twin applications to support Architecture, Engineering, Construction and Operations for the built environment. We take these technologies through all stages of the innovation lifecycle, from R+D prototypes through to robust production applications. We are looking for Digital Twin Specialists to support this mission and deliver industry-leading solutions.

Digital Twin Specialists will specify and create systems to augment the built environment with digital data for insights and optimization. They will also collaborate with architectural and engineering design teams in exploring opportunities for integrating technology with building and city design.

Responsibilities

- Research and develop digital twin, smart building and smart city technologies. Engage with all stages of the innovation lifecycle, identifying successful technologies and promoting these from prototype to production use
- Advise and support project teams at all stages of design and construction, particularly through promotion and application of the above tools and methodologies
- Liaise with designers and domain specialists internal and external to the company to ensure effective development, integration, and application of wider company design systems and processes
- Maintain and advance state of the art knowledge of Computer Aided Design, Computer Aided Engineering, Building Information Modelling, Geographic Information Systems, Computerised Maintenance Management Systems and Computer Aided Facilities Management (CAD/CAE/BIM/GIS/CMMS/CAFM)

Qualities and Skills required

Essential

- Degree in Architecture, Engineering (including Building Services) or Computer Science or equivalent experience
- Experience in one or more areas of collecting, managing and visualizing data related to the built environment, including: sensor technology, cloud data management, data processing and visualization
- Experience in one or more of the following areas: architecture, building services and smart buildings, smart cities, digital twins, ubiquitous computing (including the Internet of Things), cognitive computing and artificial intelligence, interactive application development, cloud computing
- Familiarity with systems for managing buildings, cities or other complex assets (BMS / AMS)
- Knowledge and awareness of the world of CAD/CAE/BIM/GIS/CMMS/CAFM and its potential application within the practice
- Understanding and experience of the processes of design, construction, and operations

- Familiarity with common risks – digital and physical – associated with Digital Twins and Smart Buildings / Cities and mitigation of these. Ability to liaise with relevant colleagues and consultants to ensure best practices are implemented
- Strong programming skills in one or more of the following languages: C#, C++, Python, JavaScript (Angular or React)
- Able to manage sensitive and confidential information
- A keen eye for detail.
- Good problem-solving skills
- Excellent verbal and written communication skills
- Good interpersonal skills

Desirable

- Experience with standards for describing building / city ontology and relationships such as Microsoft Digital Twin Definition Language, Brick Schema, Project Haystack or similar
- Familiarity with the following CAD applications: Rhino, Grasshopper, Revit, Dynamo
- Development of software dependent on CAD/BIM APIs
- Knowledge of Facility Management and Asset Management, industry standards and data communication protocols
- Experience of web development using HTML, CSS, JavaScript
- Experience of developing applications using computer game platforms, particularly Unity or Unreal Engine
- Experience with cloud computing and cloud service providers (Azure or AWS) including DevOps principles such as CI/CD.
- Experience with database technologies and query languages including relational (SQL), document and/or graph databases
- Knowledge of UNIX and container / cluster computing technologies (Docker, Kubernetes)