Position Summary

The Software Engineering Intern will provide support for staff engineers in the VMC Technology Department and work on an independent capstone project.

Responsibilities

Supports VMC Technology Department Staff Engineers

- Apply algorithms that require optimized data-structures and computational methods.
- Perform calculations involving rigid body physics and linear-elastic mechanics.
- Assist in resolving bugs and minor feature creation for the E-Gen software ecosystem.
- Create technical documentation, readme, and/or bug reports.
- Assist in maintenance of E-Gen technical database (anchor test data, new building codes, new design standards, equipment database creation, new VMC product addition, calculation validations)

Independent Software Engineering Capstone Project

- A major project will be assigned after 2-4 weeks which will take approximately 2 months to complete.
- The exact project topic and requirements will be based on a balance between VMC needs, intern strengths and weaknesses, and intern interests.
- Required presentation and formal handoff VMC code repository.
- Previous capstone projects by interns have included: Technical Data-Entry, Finite-Element Solvers, Map Projection Tools, Custom 3D File Exporters, Beam Stress Analysis Tools, Tech Demos/Evaluations.

Knowledge/Skills/Abilities

- Ability to write in at least one interpreted and one compiled language.
- Familiarity with synchronous and asynchronous code execution.
- Understanding of all 3D affine transformations using matrices or other algebras (i.e. Quaternions)
- Knowledge of basic engineering concepts and general rigid body physics calculations
- Ability to prototype algorithms and computations in MS Excel / Google Sheets (without using macros)
- Understanding of when to use different formality to communicate (Verbal, Email, MS Teams)
- Effective verbal and written communication skills (including technical writing and equations)
- Familiarity with Typescript/C/C# or similar syntax languages, Angular, NodeJS, Puppeteer, Jest, JIRA, Confluence, GitHub, Jenkins is preferred.
- Familiarity with multivariable calculus, differential equations, finite difference methods, implicit and explicit simulation numerical analysis, linear-algebra sparse algorithms, and complex analysis.

Competencies

- Ability to thrive in a fast-paced work environment.
- Ethical approach to work.
- Results oriented with a strong sense of urgency.
- Proven organizational and detail-orientation skills.
- Resourceful and efficient with strong ability to prioritize.

Minimum Qualifications

- 2nd to 4th year Engineering students; OR
- 2nd to 4th year Computer Science, Mathematics, Physics, or related Major and/or Minor