



Applied Mathematical Engineer

Compensation: £50,000 salary + equity options.

Contract: Permanent, full-time.

Work location: In-person, Cambridge (~10-minute walk from the train station).

Start date: Flexible for the right candidate, ideally within the next 3 months.

About Vanellus

Computational fluid dynamics (CFD) simulations are increasingly in demand by engineers, and traditional tools have struggled to keep pace with the growing computational requirements. At Vanellus, we are disrupting the limitations of legacy methods by extending cutting-edge machine learning research to develop radically more efficient CFD. We are helping engineers in a wide range of industries overcome critical challenges posed by expensive CFD, and we already have a waitlist of 40 engineers (including from 7 Formula 1 teams) and have an ML expert working with the America's Cup sailing competition as an advisor.

We have just received our pre-seed funding to continue the development of our accelerated CFD prototype. Currently, the team comprises the company founders, Laurence Cullen (Machine Learning engineer with 6 years of industry experience in computer vision and NLP) and Dr. Michael Negus (applied maths PhD from Oxford with research focussing on mathematical modelling and CFD).

Summary

We are looking for a candidate with a strong mathematical background to help us develop our core CFD solver. You will be working directly alongside the founders to develop a new fluid solver from the ground up using modern numerical programming

tools. As our first hire, we expect you to leverage your technical expertise to take an active role in guiding our product development.

Responsibilities

As an early-stage startup, we expect your responsibilities will evolve based on the company's development and your career ambitions. However, in the short term, we expect your responsibilities to include:

- Collaborating with the founders to design and implement extensions to our prototype CFD solver.
- Using your mathematical insight to critically analyse our feature roadmap and algorithmic design.
- Learning the software engineering skills required to write industrial-grade software.
- Participating in code review with the founding team (i.e. we review your code, but you also review ours).

About you

You should have:

- A PhD or research-level experience in applied mathematics, physics, engineering or similar.
- Knowledge of numerical methods for solving partial differential equations (e.g. finite difference methods, finite volume methods).
- Experience with programming and/or scientific computing.
- Interest in learning industry-standard software engineering tools and techniques.
- Desire to learn the fundamentals of machine learning.

It would be nice for you to have:

- Experience programming in Python.
- Knowledge of the fundamentals of fluid/continuum mechanics.
- Experience using CFD/PDE solving tools e.g. OpenFOAM, Ansys Fluent, FEniCS.

- Some exposure to high-performance computing resources (e.g. clusters, cloud computing).

What you will learn

As founders coming from industrial and academic backgrounds, we have learnt a lot from each other in the last year. For example, Laurence has learned the fundamentals of numerical methods and Michael has learned industry-grade software development, and we've both learned a huge amount about running a business. As our first hire, we want to give you the same opportunities to learn new skills (and for us to learn from you) through fostering a peer learning environment, whether that be through code review, at the whiteboard or joining customer calls. Some examples of skills we think you could learn through this role include (but are definitely not limited to):

- Industry-standard software engineering tools and practices (e.g. version control, unit testing, software design).
- Cloud computing and backend web development.
- The fundamentals of machine learning applied to numerical computing problems.
- The non-technical skills required to help run an early-stage startup (e.g. presentations, talking to customers, recruiting).

Benefits

- Salary of £50,000 and equity options.
- 25 days of annual leave plus bank holidays.
- Top of the range of hardware, peripherals and office equipment of your choice.
- Flexible working arrangements for those with dependents.
- Experience the excitement of an early-stage startup with a huge amount of freedom in your work and the ability to guide the development of our core product.
- Use your technical expertise to create next-generation simulation tools to help real-world engineers overcome critical problems, including those in aerospace, Formula 1, energy and biomanufacturing.
- Opportunities to collaborate with the academic world via conferences, industrial grants and publishing.

- Opportunity to transform this role into a leadership position as the company grows.

Apply

To apply please email recruiting@vanellus.tech with:

- Your CV (PDF or Word document).
- A paragraph explaining why you are interested in the role (~500 characters).
- When you are available to start (rough estimate fine).