

## Full-time Position

Industry: Additive Manufacturing, Robotics & AI, Aerospace, Automotive, Industrial, Energy, Medical

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### ABOUT THE ROLE

You will be working with a team of computer vision, mechanical, automation and software engineers to combine state-of-the-art hardware with open-source software in a robust manner. An immediate task will be to work in a multi-disciplinary and trans-atlantic team to optimise algorithms that improve robot accuracy. This will be two-fold; the first using force sensors to implement cartesian impedance or admittance control and the second using two vision systems to locally and globally track the object and robot.

This is a unique opportunity to be part of a greenfield development effort that will change the way companies build and produce products. If you're ready to apply exceptional engineering practices and build software that will define the next generation in manufacturing, this is your opportunity to 'Add Adventure'.

### WHAT YOU WILL BE DOING

Work with other team members on sensor-guided robotic motion. This will be specific to a particular automation problem.

Perform mathematical modelling and algorithm development to achieve real-time sensor-guided robot motions.

Develop software that implements novel and sophisticated solutions to specific robotic applications.

Architect, implement, test & deploy force control algorithms

Analyze and optimize vision algorithms for real-time performance

Define metrics and telemetry needed for generating continuous learning from our robots

Documentation of theoretical developments & their software implementation

Demonstrate working pre-production systems and thoroughly test them to establish their operational limits.

### WHAT WE WANT TO SEE

PhD in Computer Science, Engineering, Mathematics or Physics

Strong background in Mathematics

Experience with programming languages used in robotics (C++ & Python)

Experience in non-linear force control including impedance/admittance, robot motion planning with compliance & analysis of robot-environment interaction.

Experience with real-time systems and multi-tasking/multi-threading

Experience with 2D and 3D vision algorithms and geometry processing

Experience in robotics and vision field on topics such as sensor calibration, multi-sensor fusion, object tracking, pose estimation & motion planning

Usage of various robotic and vision toolkits, e.g. OpenCV, OpenGL, Ceres, Eigen, ROS, OpenAI, GNU Library, OpenMesh, MeshLab

Experience with machine learning such as, kernel methods; neural nets; reinforcement learning; statistical learning; gaussian mixture models; gaussian processes; classification methods

Can work in a variety of compute environments (Windows, Linux, AWS)

### IT WOULD BE GREAT IF YOU HAD

Several years industry experience building robotic control algorithms

Experience with hardware & the integration of hardware with software

Experience with spatial occupancy and collision prediction/avoidance

Academic and/or industrial publications

Demonstrated ability to mentor and grow other team members

### WHO YOU ARE

You are customer obsessed

You believe in the power of team, diversity of thought & unity of action

You always act with integrity, keep your commitments and practice transparency

You think boldly, lead with courage and demand the highest standards

You drive for results and act like an owner

At Additive Automations our goal is to bring dexterity and reasoning to industrial robotic arms through AI, vision and sensing systems.

Lets disrupt an industry. It will be Fun.

### Location

It may surprise you that the Sheffield facility where we are based is the UK's premier advanced manufacturing park and home to one of the world's leading manufacturing research organisations, the AMRC. Yet Sheffield is also the only city in the UK that boasts a National Park within its boundaries, the Peak District. A hidden gem for food and drink, Sheffield produces incredible local craft beers. The mecca for mountain & road biking, rock climbing and trail running if you are into adventure then Sheffield is where it is at in the UK.

### Team

Our partners are award winning engineering institutions and include Renishaw, the AMRC University of Sheffield, NRC Canada and TRINITY.

Additive Automations team has 15+ years of start-up experience. We've been on failures, successes and have always come out stronger. Building a start-up is hard, unique and tremendously rewarding. If you think you are good enough and are up for a challenge like no other then perhaps this is the opportunity for you.

### Add Adventure.

Our ethos is to grow the company with positive benefits for the environment and for people; we aim to contribute to the decarbonisation of the UK and to the protection and empowerment of humans through robotics.

We're disruptors, innovators and adventurers who aren't afraid to challenge what's possible.

At Additive Automations we reimagine the factory through software-defined manufacturing. Our team of passionate and experienced engineers combine the best of 3D Printing, robotics and software. We are now building the team to combine the best of machine learning, computer vision and data science to deliver solutions that will transform an industry.

### TO APPLY

- Send CV & Cover Letter to: [info@additiveautomations.com](mailto:info@additiveautomations.com)