

# Computer Vision Scientist - 2d3 Ltd

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2d3 Ltd plans to appoint a Computer Vision Scientist to join its team working on research in support of products for its sensing, security and surveillance business.

The explosive growth in the use of aerial motion imagery for military, environmental, police, and relief operations has led to the urgent need for new ways to exploit the collected imagery. Today, in most instances, aerial motion imagery is simply screened live to a ground-based operator whose task is to spot events and conditions of interest. An extensive range of computer vision techniques is now being introduced worldwide, in products supplied by 2d3 and a small number of other companies, both to ease the operator's task, and to extract information which is not directly evident in the unprocessed imagery. 2d3's long experience of exploiting computer vision in other markets gives it a key advantage.

Examples of the classes of vision techniques which are applicable include:

- Image-based tracking (stabilization, SFM, SLAM, multi-sensor systems, etc)
- Object detection, recognition, & classification (with/without tracking, single/multi-view)
- Automatic mosaicing (using a range of matching methods)
- Photometric optimisation & matching
- Camera calibration & image rectification
- Novel view synthesis
- Super-resolution & compression artefact reduction
- Hyperspectral image fusion
- Terrain & townscape 3D modelling

Because 2d3 not only undertakes vision research but also produces vision-based products, it provides an unusual opportunity both to research new methods and to collaborate with the development team to see them incorporated into products. 2d3 and other companies in the Oxford Metrics Group have a wide range of contacts, collaborations, and sponsorships with academic computer vision groups, both in Oxford universities and throughout the world.

2d3 has several current vision-based research projects, sponsored by UK and US government agencies, with others in the pipeline. It also has a large and growing library of relevant and representative motion imagery for research and development use. Where suitable imagery and related data (GPS, inertial, magnetic, barometric) are not available, 2d3 regularly makes capture flights as part of its research projects, using unmanned/model, and manned aircraft.

The main software tools currently used for research and development in 2d3 are Matlab and C++. Experience in the use of these tools, while not absolutely essential, makes communication with fellow researchers and developers much easier. Where possible, 2d3's research is published in the open literature and presented at conferences. In addition, most of 2d3's externally-funded research projects require the preparation of effective proposals and regular, comprehensive, and well-written reports.

*Salary Range: Up to £45,000pa depending on experience*

*Please download "2d3 Background" and contact Lesley Butcher, Oxford. [lesley.butcher@omg3d.com](mailto:lesley.butcher@omg3d.com) for an Application form.*