PhenoRat P3

David Williamson

Following my BSc in Computer Science at the University of Leeds, I continued to an MSc by research, modelling the neuromuscular system of the nematode worm *C. elegans*. This sparked an interest in neuroscience and animal behaviour that has endured even as my area of specialty has moved more into computer vision — a field which draws heavily on biological systems for inspiration and which has seen broad application in animal studies.

Since leaving Leeds I have worked as a computer vision researcher. My past work has included an animal welfare study on aggression and damage in farmed Scottish salmon, in which I developed monitoring hardware and vision software for analysing the behaviour of the fish, as well as work in automated face recognition, industrial defect detection, long-range 3D imaging and reconstruction, and inspection and monitoring for agritech.

My role in the PhenoRat project is to develop and implement computer vision methods for identifying and tracking rats in social situations involving multiple animals, using 3D video. Correctly tracking animals in close contact with one another is a difficult task for computers, but success in this area will greatly improve the accuracy of the behavioural analysis that takes part in P4 of the project. Relatively little previous work has been done in tracking animals with 3D information, so there is potential for the development of interesting, novel techniques.