

Electropharyngeal recording analysis in *C. elegans*

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C. elegans is a non-hazardous, non-infectious, non-pathogenic, non-parasitic organism. It is small, growing to about 1 mm in length, and lives in the soil—especially rotting vegetation—in many parts of the world, where it survives by feeding on microbes such as bacteria. It is of no economic importance to man – however it is studied extensively, as whilst *C. elegans* is about as primitive an organism that exists, it nonetheless shares many of the essential biological characteristics that are central problems of human biology.

Electropharyngeograms (EPG) are extracellular recordings of the pharyngeal network of *C. elegans* and provide a readout of both neural and muscular activity. Analysis of EPGs in wild-type and mutant worms has made a significant contribution to the understanding of the molecular and genetic regulation of neural network activity and muscle excitability. In order to facilitate this and allow for higher throughput, and more discrete analysis, automated analysis methods are required to firstly, automatically detect of pumps, and events within pumps, of an EPG recording, and secondly, to statistically analyse the information acquired at the detection stage. A prototype software analysis has been developed which uses relatively crude thresholding techniques with moderate success.

This project concerns the further development of the automated EPG analysis techniques of prerecorded *C. elegans* EPG traces. Principally methods using dynamically warped template matching might be first investigated – although the scope is wide for other methods to be employed. Multiple data-sets of EPG recordings are available to assess the performance of the methods being developed.

Further information on this project can be obtained on request from: C.James@warwick.ac.uk