PhD studentship at SynthSys and Simulistics Ltd. in Edinburgh

BBSRC iCASE: Predicting Plant Growth, from Genes to Organism

We invite applications to a fully-funded, interdisciplinary PhD studentship, via the online application form: http://www.ed.ac.uk/studying/postgraduate/degrees?id=12&cw_xml=details.php. Please contact andrew.millar@ed.ac.uk for informal enquiries, citing the project title above.

Understanding the growth of a plant in a changing environment is demanding, because plant development and metabolism respond sensitively to the local conditions. We have linked Crop Science and Systems Biology approaches to understand whole-plant growth, in the first 'Framework Model' of the laboratory model plant *Arabidopsis thaliana*. The model predicts whole-plant biomass, from detailed molecular mechanisms, and was recently validated in independent experiments.

This project will develop the next-generation model, both as a tool for fundamental biology, and to enable synthetic biology designs that take account of the complex regulation in the plant host. You will be trained to use a range of cutting-edge models, building on the concrete example of our Framework Model. The model will be extended to represent larger, molecular networks that control biomass under a wider range of environmental conditions, with international collaborators and Simulistics' Simile software. You will test the model in new experiments, using Arabidopsis mutants and environmental control will test the model's predictive power, and to disseminate the models in the international research community.

Student profile: background in Biology, Geoscience, Agricultural Engineering or a suitably numerate discipline (e.g. computer science, engineering, applied maths or physics). Computer skills essential; programming experience desirable but not essential. Dual-expertise training provided in the interdisciplinary environment of SynthSys, with experience in Simulistics.

The supervisory team: Prof. Andrew Millar FRS, School of Biological Sciences (main supervisor); Prof. Vincent Danos, School of Informatics, Director of SynthSys; Dr. Robert Muetzelfeldt, Simulistics Ltd.

Further information:
www.amillar.org; www.synthsys.ed.ac.uk; www.simulistics.com.

Salazar J.D., Saithong T., Brown P.E., Foreman J., Locke J.C.W., Halliday K.J., Carré I.A., Rand D.A., Millar A.J. (2009) Prediction of Photoperiodic Regulators from Quantitative Gene Circuit Models. Cell, 139: 1170-1179.

Fully funded for UK and UK-resident EU students through a BBSRC industrial CASE studentship. Deadline 15 Dec 2013.