Name: **David duVerle**

Title: **11th International Workshop on Bioinformatics and Systems Biology (Berlin, 2011)**

Workshop report：

1. Work Presentation

The work presented was entitled 'Reverse-Engineering Gene Regulatory Networks (GRN) using Time Series' and presented a method to improve GRN inference through the identification and specification of smaller subsets of genes involved in regulation motifs (eg. feed-forward loops, feedback loops...). Using time-course expression data approximated with truncated Fourier expansion and a bio-physical model based on Michaelis-Menten ordinary differential equations, our method hopes to accurately identify the type of regulation pattern involved in all triplets of genes considered.
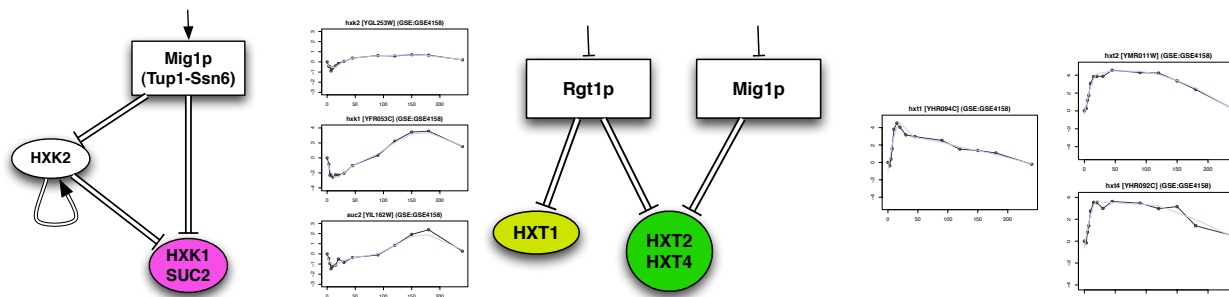
Our method is currently under implementation and pending full evaluation on synthetic and *in vivo* data, but preliminary qualitative studies are already yielding promising results.

2. Workshop Interactions

The poster was well received and elicited many interesting questions and interactions with workshop attendees.

This work received "Best Poster Award" through a vote by workshop attendees.

Particular points discussed with other researchers where:
- Alternatives to the current Fourier expansion method (such as wavelets).

- Evaluation criteria (synthetic datasets, *in vivo* data): limitations and availability.
- Future extensions of the method to more complex types of interactions (sets of 4 nodes or more, full network inference…).

In addition, many notes and suggestions were exchanged with other projects sharing similar interest in gene regulation and gene network inference.

3. Summer School

The ensuing two days of Summer school were the occasion to enrich our knowledge on useful bioinformatics topics, such as Markovian models, as well as less familiar topics, such as bifurcation analysis or metagenomics.

4. Follow-up Visit to Max Planck

The stay in Berlin was also the occasion for a follow-up visit to the Max Planck Institute for Molecular Biology, where I spent 3 months during Winter 2009-2010 (as part of the ITP). The proximity of interest between our current project and the focus of many researchers at the Computational Biology Department there, yielded lead to some interesting exchanges regarding the gene regulation model used by our work.

5. Cultural Activities

Thanks to the program prepared by our hosts at Charité University Berlin, we were also able to enjoy some the views around Berlin during an evening boat tour on the Spree river and a dinner that was a great occasion to socialise with other attendees in a less formal context.

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