

Name: Balint Borgulya

Supervisor's Name: Bartek Waclaw

Firm Title for Project: Evolution of metabolic networks

Status: I meet with my supervisor weekly. So far I have conducted tests on the speed of different approaches of modelling graphs in C++, read articles about artificial life and evolution simulation (eg. Court, Steven J., Bartlomiej Waclaw, and Rosalind J. Allen. "Lower glycolysis carries a higher flux than any biochemically possible alternative." arXiv preprint arXiv:1404.2900 (2014).

Lenski, Richard E., Charles Ofria, Robert T. Pennock, and Christoph Adami. "The Evolutionary Origin of Complex Features." *Nature* 423, no. 6936 (2003): 139-44.

Flamm, C., A. Ullrich, H. Ekker, M. Mann, D. Hgerl, M. Rohrschneider, S. Sauer, et al. "Evolution of Metabolic Networks: A Computational Framework." *Journal of Systems Chemistry* 1, no. 1 (2010): 1-14.

He, Jiankui, Jun Sun, and Michael W. Deem. "Spontaneous Emergence of Modularity in a Model of Evolving Individuals and in Real Networks." *Physical Review E* 79, no. 3 (2009): 031907.)

Currently I'm working on importing the set of chemical reactions and their properties produced by my supervisor's program into my program, and test some simple networks with it.