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Recommandation Letter for Tim Vogels

Dear Colleagues,

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It is a pure pleasure to write a reference letter for Tim Vogels. Tim joined my lab as a PostDoc less than 2 years ago, and the collaboration with him has been just wonderful. It is great fun to discuss with him novel scientific ideas. He is an excellent scientist, careful and systematic, he gives outstanding talks, and he writes extremely well. Moreover he communicates easily with everybody, so that I have only positive things to say.

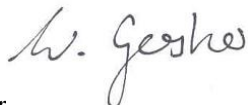
Tim has worked in my lab on questions of computational and theoretical neuroscience. One of the recurring problems in simulations of networks of spiking neurons is that it is hard to stabilize network activity. Networks can be stable in small parameter regimes, or with a sufficient amount of noise, but stability easily breaks down if some subgroups of neurons have stronger connections than others – as will naturally happen if synaptic plasticity forms Hebbian assemblies. In a joint work with Claudia Clopath (a former PhD student), Friedemann Zenke (a PhD student in my lab whose work is currently followed by Tim) and Henning Sprekeler (an outstanding postdoc who focuses on mathematical theory), Tim Vogels and colleagues discovered a beautiful and novel way of network stabilization via plasticity of inhibitory interneurons. Tim presented this work at the Cosyne conference 2010 (selected as one of the few contributed oral talks amongst several hundred submissions) and it appeared in SCIENCE in December 2011 (early online publication in Science Express in November). The central idea of the approach to use plasticity of inhibitory neurons to stabilize networks; what Tim and co-authors show in this paper is that a rule that is inspired by published experimental data (i) accounts for a series of experiments on reshaping of balance between excitatory and inhibitory receptive fields in auditory cortex ; (ii) explains sparse activity in cortex and (iii) stabilizes network activity even if Hebbian assemblies are embedded in the simulated network. When Tim presented these results at a few workshops it always received unanimous enthusiasm of the audience. I can't remember of having had a Postdoc before Tim who was so efficient in generating outstanding and novel research, after a switch of lab.

I mentioned above that Tim is careful and writes extremely well. As a proof of this statement, let me tell just one little anecdote. Tim prepared the manuscript for Science systematically, optimized each figure and worked on the text carefully before he submitted – and the manuscript was accepted in the first round and returned with comments and annotations for final editing from the Science editor, and only a few minor comments of one referee. The comments could have been dealt with by changing two lines in the paper, but Tim wanted to make really sure that everything is correct and did another full suite of simulations to check the minor points raised by the referee.

Tim interacts a lot with the PhD students and advises a few of them on a day-to-day basis since I no longer have the time to follow all my students. Thus in practice he supervises two PhD students (Friedemann Zenke and Guillaume Hennequin) and several internship students and semester students. I consider him as a colleague and not as a PostDoc!

I consider Tim as a rising star. He is already very visible in the community with his suite of papers that came out of his PhD work in collaboration with Larry Abbott and his fame is bound to grow with his paper now in Science. The work published in SCIENCE was done at the EPFL with Tim Vogels as the driving force and lead author. Tim is productive, goal-oriented, a great speaker and just a wonderful person to have as a colleague. I am very happy to recommend him for the position as an Assistant Professor in Computational and Theoretical Neuroscience at Brown University.

Kind regards



Wulfram Gerstner

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