

Ten Years of Neuroinformatics

Erik De Schutter · Giorgio A. Ascoli ·
David N. Kennedy

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This issue closes the tenth volume of Neuroinformatics and in this editorial we will present a brief overview of how the journal evolved over its first decade. Of course many outside events sculpted the scientific field during this time. The Human Brain Project was a dominating force in US neuroinformatics when this journal was born, but was discontinued¹ and a new similarly named project may soon dominate European neuroscience and neuroinformatics.² In the USA the NIF (Neuroscience Information Framework³), the NITRC (Neuroimaging Informatics Tools and Resources Clearinghouse⁴) and many

¹ De Schutter E, Ascoli GA, Kennedy DN (2006) On the future of the human brain project. *Neuroinform* 4: 129–130.

² Waldrop MM (2012) Brain in a box. *Nature* 482: 456–458.

³ <http://neuinfo.org/>; Gupta A, Bug WJ, Marengo LN, Qian X, Condit C, Rangarajan A, Müller HM, Miller PL, Sanders B, Grethe JS, Astakhov V, Shepherd GM, Sternberg PW, Martone ME (2008) Federated access to heterogeneous information resources in the Neuroscience Information Framework (NIF). *Neuroinform* 6: 205–217.

⁴ <http://www.nitrc.org/>; Luo X-ZJ, Kennedy DN, Cohen Z (2009) Neuroimaging informatics tools and resources clearinghouse (NITRC) resource announcement. *Neuroinform* 7: 55–56.

E. De Schutter
Computational Neuroscience Unit,
Okinawa Institute of Science and Technology,
Okinawa, Japan

G. A. Ascoli
Krasnow Institute for Advanced Study, Center for Neural
Informatics, Structures, and Plasticity, George Mason University,
Fairfax, VA, USA

D. N. Kennedy
Division of Neuroinformatics, Department of Psychiatry,
University of Massachusetts Medical School,
Worcester, MA, USA

E. De Schutter (✉)
Theoretical Neurobiology,
University of Antwerp,
Antwerp, Belgium
e-mail: erik@oist.jp

other initiatives became established resources and the INCF (International Neuroinformatics Coordination Facility⁵) with its different National Nodes pushed neuroinformatics throughout the world. Overall it is clear that the field is vigorous and growing fast. Consequently, we also welcomed a number of new competing journals, all of them open access.

On its tenth anniversary the journal is healthy and doing well. The increased competition initially hurt us with a decreased paper flow, resulting in a number of lean years (volumes 4–8 had only 250–320 pages each), but we are back to the desired production level (more than 400 pages in a volume) since 2 years. In fact we would have grown more this year, but instead advanced our publication schedule (all issues now appear 2 months earlier during the year). During the lean years we did not relax our editorial standards, with an average acceptance ratio of 40–50 % submitted papers. As a result Neuroinformatics can boast having the largest impact factor in the field, stably fluctuating around 3.0, higher than all computational neuroscience journals, for example.

Interestingly, our rejection rate increasingly includes manuscripts that were returned for major revision and then withdrawn by the authors (none in the beginning, up to 25 % of the papers submitted in 2010). In some cases we later discovered the same paper with only small changes in a competing journal. While this may be seen as a bit disrespectful, it seems to reflect a reputation for tough review of resubmissions by the journal, which we only wish to encourage.

But more important is scientific content. Did the kind of papers we publish evolve over those 10 years and does this indicate a changing field of neuroinformatics? Some categories were stable, e.g. the majority of papers is about

⁵ <http://www.incf.org/>; De Schutter E (2007) Neuroscience leading the way: reviews cascade by the INCF. *Neuroinform* 5: 205–206.

neuroimaging (20 % of papers in the first five volumes,⁶ increased to 24 % in the last five) and categories like clinical neuroinformatics, electrophysiology, ontologies and simulation software were all stable at a bit less than 10 % each. A big growth area is tools and methods for morphological analysis of neurons and tissue (from 9 % to 22 %), an increase that is only partially explained by our Diadem competition⁷ special issue in volume 9. Smaller increases were seen for database related papers (from 3 to 8 %) while another core neuroinformatics activity, digital atlases, decreased from 14 to 5 %. We presume this decrease reflects the maturation of digital atlasing: though this topic remains very active, the work has become incremental and often not suitable for paper publication in a neuroinformatics journal. What looked like a very promising subfield, the neuroinformatics of neural genetics, has disappeared completely from the journal (initially at 11 %), maybe because it is not distinct enough from bioinformatics.

The journal also started several new initiatives, which hopefully will inspire others. We began to actively review software: whenever we receive a paper describing software we ask reviewers to download it and verify whether it runs as advertised in the manuscript.⁸ Consequently revisions now often affect both the paper and the software it describes. Last year we announced the new Original Data Article format,⁹ papers that can be used to describe data resources without any scientific analysis or conclusions. At present the journal has not yet published such papers, but the topic generates a lot of interest whenever we present it to broad audiences.

It is always a challenge to try to predict the future. Based on recent patterns we expect a slow but steady growth in the number of published papers, which will eventually lead to an increase of the number of annual issues. Our editorial challenge is to make sure that at the same time quality keeps high and to further improve the reputation of the journal.

⁶ De Schutter E (2007) A second look back. *Neuroinform* 5 :1–2.

⁷ Liu Y (2011) The DIADEM and Beyond. *Neuroinform* 9 :99–102.

⁸ De Schutter E, Ascoli GA, Kennedy DN (2009) Review of papers describing neuroinformatics software. *Neuroinform* 7 :211–212.

⁹ Kennedy DN, Ascoli GA, De Schutter E (2011) Next Steps in Data Publishing. *Neuroinform* 9 :317–320.