**Call for Papers**

Special Issue on

***Off the mainstream: advances in neural networks and machine***

***learning for pattern recognition***

to be published in ***Neural Processing Letters***

**\*\*\* Submission deadline: January 31, 2017 \*\*\***

**Guest editors**

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**Aims and scope of the special issue**

"Mainstream science is about publishing what everyone else is publishing with very small changes. You'd better at least start off that way if you want to get tenure," the sociologist Rodney Stark said. But "big ideas don't come to those who avoid risk", as John Bohannon added. The area of artificial neural networks (ANN) and machine learning (ML) makes no exception to these ends: Mainstream topics, originally stemming from exciting breakthroughs (the "big ideas") that gradually become trends and end-up being mostly over-beaten publishing tracks, have characterized the scientific literature throughout the whole history of these research fields. A few, widely known instances of such (more or less recent) mainstream trends are:

* Supervised support vector machine training (in both primal and dual)
* Supervised multilayer perceptron training via regular backpropagation
* Radial basis functions networks
* Bayesian networks (either shallow or deep)
* Deep feed-forward and convolutional neural networks
* Countless applications of the aforementioned machineries
* The “approximation capabilities” of such machineries

Based on these premises, this special issue invites paper submissions on real novel research developments in the areas of neural networks and learning machines that (1) are rooted in (or, aimed at) pattern recognition (PR), and that, above all, (2) do not follow in the footsteps of nowadays established trends. Preference (over applications, theoretical analysis, and variants of established techniques) will thus be given to submissions that hand out fresh and innovative ideas/architectures/algorithms, even if they are in their infancy (e.g., possibly lacking of a complete investigation of their theoretical properties). A detailed list of topics of interest would contradict the very perspective of the present special issue. Nonetheless, some general, topical research directions are (to name a few):

* New ANN or ML architectures
* New ANN, ML, or PR algorithms
* New estimation/optimization/assessment techniques for ANNs, ML, or PR
* New and sound combination/hybridization of machines
* Solutions to new, relevant PR-related problems
* New and sound solutions to established PR-related problems

If you are not sure on whether your manuscripts matches the aims and scope of this special issue or not, do not hesitate to get in touch with the guest editors at any time.

The special issue will comprise (a) papers submitted in response to this call, and (b) extended versions of selected papers from the ANNPR 2016 Workshop (https://neuro.informatik.uni-ulm.de/ANNPR2016/), sponsored by the International Association for Pattern Recognition.

**Paper submission**

Papers must be submitted online via the Neural Processing Letters website (https://www.editorialmanager.com/nepl/default.aspx), selecting the choice that indicates this special issue (identifier: *S.I.:Off\_mainstream*). Prepare your paper following the Journal guidelines for Authors (<http://www.springer.com/computer/ai/journal/11063?detailsPage=pltci_1060677>). All submitted papers will undergo a regular peer-review process.

**Important dates:**

Opening of electronic submission: September 1, 2016

Submission deadline: January 31, 2017

Completion of 1st round of review process: March 31, 2017

Re-submission of revised manuscripts: May 15, 2017

Final decision: June 30, 2017

Tentative publication of the Special Issue: Fall 2017