

**Junpeng Lao, PhD**

<http://Junpenglao.xyz>

Born 1986.09.05

Department of Psychology, University of Fribourg

Faucigny 2, 1700 Fribourg, Switzerland

[Junpeng.lao@unifr.ch](mailto:Junpeng.lao@unifr.ch) [JunpengLao@gmail.com](mailto:JunpengLao@gmail.com)

## **Education and Professional History:**

**2013.9 – present** Post-doc in University of Fribourg. I am supported by the Swiss National Science Foundation (n° 100014\_138627 and n° 100014\_156490/1)

**2012.9 – 2013.9** Research assistant in University of Fribourg. I was supported by National Center of Competence in Research (NCCR) Affective sciences financed by the Swiss National Science Foundation (n° 51NF40-104897).

**2009.10 – 2013.9** University of Glasgow, Ph.D in Cognitive Neuroscience, Thesis title: “Tracking the temporal dynamics of cultural perceptual diversity in visual information processing”. Advisor: Prof. Roberto Caldara and Prof. Lars Muckli.

**2005.9 – 2009.6** Sun Yat-Sen University, B. Sc. in Psychology. Thesis title: “Control deprivation and styles of thinking”. Advisor: Prof. Xinyue Zhou.

## **Software and Algorithms:**

**Map4** – Linear Mixed Model solution for statistical fixation mapping of eye movement data. It is a data-driven statistics Matlab toolbox implementing linear mixed model and non-parametric statistics based on permutation and bootstrap spatial clustering. It also has a full graphical user interface. Map4 is one of the three finalists of the SMI Computing Competition in ECEM 2015.

Cite as: Lao et al. (2016). Map4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. *Behavior Research Methods*. [doi: 10.3758/s13428-016-0737-x](https://doi.org/10.3758/s13428-016-0737-x)

**Strategy quantifier for face viewing** – It is a Bayesian Generative model for quantifying the face viewing strategy (global or local). Using Gaussian Mixture Models, it quantifies a given observer’s fixation strategy during free-viewing of face stimuli base on the fixation location information only. It output a scale value between 0 and 1 to indicate how global or local the observer is.

**JAEFA** - Convolution-based algorithm for eye movement event detection

## Publications:

**Lao<sup>1</sup>, J.**, Ruffieux<sup>1</sup>, N., Ramon<sup>1</sup>, M., Colombo, F., Stacchi, L., Borruat, FX., Accolla, E., Annoni JM., & Caldara, R. (2016). Residual Perception of Biological Motion in Cortical Blindness, *Neuropsychologia*, doi: [10.1016/j.neuropsychologia.2016.11.009](https://doi.org/10.1016/j.neuropsychologia.2016.11.009).

<sup>1</sup>Joint first authors

**Lao<sup>1</sup>, J.**, Geangu<sup>1</sup>, E., Ichikawa<sup>1</sup>, H., Kanazawa, S., Yamaguchi, M. K., & Caldara<sup>2</sup>, R., & Turati<sup>2</sup>, C. (2016). Culture shapes 7-month-olds perceptual strategies in discriminating facial expressions of emotion. *Current Biology*, 26, 663–664. doi: [10.1016/j.cub.2016.05.072](https://doi.org/10.1016/j.cub.2016.05.072)

<sup>1</sup>Joint first authors and <sup>2</sup>joint last authors

**Lao, J.**, Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2016). iMap4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. *Behavior Research Methods*. doi: [10.3758/s13428-016-0737-x](https://doi.org/10.3758/s13428-016-0737-x)

Bovet, J., **Lao, J.**, Bartholomée, O., Caldara, R., & Raymond, M. (2016). Mapping female bodily features of attractiveness. *Scientific Reports*, 6, 18551. doi: [10.1038/srep18551](https://doi.org/10.1038/srep18551)

Miellet, S., **Lao, J.**, & Caldara, R. (2014). An appropriate use of iMap produces correct statistical results: a reply to McManus (2013)“iMAP and iMAP2 produce erroneous statistical maps of eye-movement differences”. *Perception*, 43, 451-457.

**Lao, J.**, Vizioli, L., & Caldara, R. (2013). Culture modulates the temporal dynamics of global/local processing. *Culture and Brain*, 1(2-4), 158-174.

Romeo, M., Vizioli, L., Breukink, M., Aganloo, K., **Lao, J.**, Cotrufo, S., Caldara, R., & Morley, S. (2013). A Functional Magnetic Resonance Imaging Paradigm to Identify Distinct Cortical Areas of Facial Function: A Reliable Localizer. *Plastic and Reconstructive Surgery*, 131(4), 527e-533e.

Miellet, S., Zhou, X., He, L., **Lao, J.**, & Caldara, R. (2012). When East meets West: gaze-contingent Blindspots abolish cultural diversity in eye movements for faces. *Journal of Eye Movement Research*, 5, 1-12.

Zhou, X., He, L., Yang, Q., **Lao, J.**, & Baumeister, R. F. (2012). Control deprivation and styles of thinking. *Journal of Personality and Social Psychology*, 102(3), 460.

## Conference Presentations (Selected):

**2015.9.8 – 9** Lao, J., Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2015). iMap4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. 14<sup>th</sup> Biannual congress of the Swiss Psychological Society. (Geneva, Switzerland, **oral presentation**)

**2015.8.16 – 21** Lao, J., Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2015). iMap4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. 18<sup>th</sup> European Conference on Eye Movements. (Vienna, Austria, **oral presentation**)

- 2015.1.11 – 15** Lao, J., & Caldara, R. (2015). Reverse correlating facial feature use in free-viewing EEG signals. Alpine Brain Imaging Meeting 2015. (Champéry, Switzerland)
- 2014.5.16 – 21** Lao, J., Vizioli, L., Muckli, L., & Caldara, R. (2014). Decoding culture from the human primary visual cortex. *Journal of Vision*, 14(10):1093 (14th annual meeting of Vision Sciences Society)
- 2013.9.11 – 12** Lao, J., He, L., & Caldara, R. (2013). Microsaccades Boost Face Identification. 13<sup>th</sup> Biannual congress of the Swiss Psychological Society. (Basel, Switzerland, **oral presentation**)
- 2011.7.15 - 18** Lao, J., Vizioli, L., Mielliet, S., & Caldara, R. (2011). Eyes like it, brain likes it: Tracking the neural tuning of cultural diversity in eye movements for faces. *i-Perception* 2(4) 356. (Asia-Pacific Conference on Vision, 2011, **oral presentation**)
- 2011.1.9 - 13** Lao, J., Vizioli, L., Mielliet, S., & Caldara, R. (2011). Eyes like it, brain likes it: Tracking the neural tuning of cultural diversity in eye movements for faces. Alpine Brain Imaging Meeting 2011. (Champéry, Switzerland, **oral presentation**)

## Teaching:

Cognitive Neuroscience

Statistical Analysis with MATLAB

Psychology Experiment with MATLAB

## Awards:

- 2010.12** Guarantors of Brain Travel Grant supporting the attendance of the Alpine Brain Imaging Meeting in January 2011
- 2010.5** Experimental Psychology Society Grindley Grant supporting the attendance of the Vision Science Society Annual Meeting in May 2010
- 2009.9** UK/China PhD Scholarships for Excellence programme funded by China Scholarship Council and the Scottish Government