**Junpeng Lao**, PhD

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Born 1986.09.05

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**Professional History**

**2018.7 – present** Data Scientist at Google Zurich.

**2013.9 – 2018.7** Post-doc at 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 at 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).

**Education**

**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**

I contributed to various Open-Source Software regularly, more information could be found on Github: <https://github.com/junpenglao>

**PyMC3** (<https://github.com/pymc-devs/pymc3>) – a Python package for Bayesian statistical modelling and Probabilistic Machine Learning. It implemented advanced Markov chain Monte Carlo and variational inference algorithms. I am part of the core development team pymc\_devs.

***i*Map4** (<https://github.com/iBMLab/iMap4>) – a Matlab toolbox for statistical fixation mapping of eye movement data. It is a data-driven statistics toolbox implementing linear mixed model and non-parametric statistics based on permutation and bootstrap spatial clustering. It also has a full graphical user interface. *i*Map4 is one of the three finalists of the SMI Computing Competition in ECEM 2015.

**Preprints**

Stacchi, L., Ramon, M., **Lao, J.**, & Caldara, R. (2018). Neural representations of faces are tuned to eye movements. *bioRxiv*, 402263. [doi: 10.1101/402263](https://doi.org/10.1101/402263)

**Lao, J.** (2016). Reproducible Research with End-to-end Machine Inference Using Deep Learning and Bayesian Statistics, *Journal of Brief Ideas*, [doi: 10.5281/zenodo.203086](http://beta.briefideas.org/ideas/dc4f3d8981cbea107f013cbb8f2f2cb7)

**Journal Articles**

Wyssen, A., **Lao, J.**, Rodger, H., Humbel, N., Lennertz, J., Schuck, K., Isenschmid, B., Milos, G., Trier, S., Whinyates, K., & Assion, H.J. (2019). Facial Emotion Recognition Abilities in Women Experiencing Eating Disorders. *Psychosomatic medicine, 81*(2), 155-164. doi: [10.1097/PSY.0000000000000664](https://journals.lww.com/psychosomaticmedicine/Abstract/2019/02000/Facial_Emotion_Recognition_Abilities_in_Women.6.aspx)

Lüthold, P., **Lao, J.**, He, L., Zhou, X., & Caldara, R. (2019). Waldo reveals cultural differences in return. *Visual Cognition*, doi: [10.1080/13506285.2018.1561567](https://www.tandfonline.com/doi/abs/10.1080/13506285.2018.1561567?journalCode=pvis20)

Han, C., Wang, H., Fasolt, V., Hahn, A., Holzleitner, I. J., **Lao, J.**, ... & Jones, B. (2018). No clear evidence for correlations between handgrip strength and sexually dimorphic acoustic properties of voices. *American Journal of Human Biology*, e23178. [doi: 10.1002/ajhb.23178](https://onlinelibrary.wiley.com/doi/full/10.1002/ajhb.23178)

Eulerich, M., Theis, JC., **Lao, J.**, & Ramon, M. (2018). Do Fine Feathers Make a Fine Bird? The Influence of Attractiveness on Fraud-Risk Judgments by Internal Auditors. *International Journal of Auditing*, 1-13. [doi: 10.1111/ijau.12137](https://onlinelibrary.wiley.com/doi/full/10.1111/ijau.12137)

Richoz, A-R., **Lao, J.**, Pascalis, O., & Caldara, R. (2018). Tracking the recognition of static and dynamic facial expressions of emotion across the life span. *Journal of Vision*, *18(9):5*, 1-27. [doi: 10.1167/18.9.5](https://jov.arvojournals.org/article.aspx?articleid=2702076)

Jones, B. C., Hahn, A. C., Fisher, C. I., Wang, H., Kandrik, M., **Lao, J.**, Han, C., ... & DeBruine, L. M. (2018). No compelling evidence that more physically attractive young adult women have higher estradiol or progesterone. *Psychoneuroendocrinology, 98,* 1-5. [doi: 10.1016/j.psyneuen.2018.07.026](https://www.sciencedirect.com/science/article/pii/S0306453018300039)

Vizioli, L., Bratch, A.1, **Lao, J.**1, Ugurbil, K., Muckli, L., & Yacoub, E. (2018). Temporal multivariate pattern analysis (tMVPA): A single trial approach exploring the temporal dynamics of the BOLD signal. *Journal of Neuroscience Methods, 308,* 74-87. [doi: 10.1016/j.jneumeth.2018.06.029](https://www.sciencedirect.com/science/article/pii/S0165027018302073)

1*Equal contribution*

Rodger, H., **Lao, J.**, & Caldara, R. (2018). Quantifying facial expression signal and intensity use during development. *Journal of Experimental Child Psychology, 174,* 41-59.[doi: 10.1016/j.jecp.2018.05.005](https://www.sciencedirect.com/science/article/pii/S0022096517306525)

Ramon, M., Sokhn, N., **Lao, J.**, & Caldara, R. (2018). Decisional space determines saccadic reaction times in healthy observers and acquired prosopagnosia. *Cognitive Neuropsychology,* [doi: 10.1080/02643294.2018.1469482](https://doi.org/10.1080/02643294.2018.1469482)

Malaspina, M., Albonico, A., **Lao, J.**,Caldara, R., & Daini, R. (2018). Mapping self-face recognition strategies in congenital prosopagnosia. *Neuropsychology*, *32*(2), 123-137. [doi: 10.1037/neu0000414](http://dx.doi.org/10.1037/neu0000414)

Lakens, D., Adolfi, F. G., …, **Lao, J.**, …, Zwaan, R. A. (2018). Justify Your Alpha. *Nature Human Behaviour, 2*, 168-171. [doi:10.1038/s41562-018-0311-x](http://rdcu.be/HQ1y)

Turano1, M. T., **Lao1, J.**, Richoz, A-R., de Lissa, P., Degosciu, S. B., Viggiano, M. P., & Caldara, R. (2017). Fear boosts the early neural coding of faces. *Social cognitive and affective neuroscience*, *12*(12), 1959-1971. [doi: 10.1093/scan/nsx110](https://academic.oup.com/scan/article/12/12/1959/4430450)

1*Joint first authors*

Stoll, C., Palluel-Germain, R., Caldara, R., **Lao, J.**, Dye, M. W. G., Aptel, F., & Pascalis, O. (2017). Face Recognition is Shaped by the Use of Sign Language. *Journal of Deaf Studies and Deaf Education.* [doi: 10.1093/deafed/enx034](https://academic.oup.com/jdsde/article-abstract/doi/10.1093/deafed/enx034/4107883/)

Papinutto, M., **Lao, J.**, Ramon, M., Caldara, R., & Miellet, S. (2017). The Facespan—the perceptual span for face recognition. *Journal of Vision, 17(5)*:16. [doi: 10.1167/17.5.16](http://jov.arvojournals.org/article.aspx?articleid=2629823)

Garcia-Burgos, D., **Lao, J.**, Munsch, S., & Caldara, R. (2017). Visual attention to food cues is differentially modulated by gustatory-hedonic and post-ingestive attributes. *Food Research International, 97,* 199-208.[doi: 10.1016/j.foodres.2017.04.011](http://www.sciencedirect.com/science/article/pii/S096399691730159X)

**Lao, J.**, Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2017). *i*Map4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. *Behavior Research Methods,* *49(2),* 559-575*.* [doi: 10.3758/s13428-016-0737-x](http://link.springer.com/article/10.3758/s13428-016-0737-x)

Ruffieux1, N., Ramon1, M., **Lao1, J.**, Colombo, F., Stacchi, L., Borruat, FX., Accolla, E., Annoni JM., & Caldara, R. (2016). Residual Perception of Biological Motion in Cortical Blindness. *Neuropsychologia, 93,* 301-311. [doi: 10.1016/j.neuropsychologia.2016.11.009](http://dx.doi.org/10.1016/j.neuropsychologia.2016.11.009)

1*Joint first authors*

Geangu1, E., Ichikawa1, H., **Lao1, J.**, Kanazawa, S., Yamaguchi, M. K., & Caldara2, R., & Turati2, 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](http://www.cell.com/current-biology/abstract/S0960-9822(16)30605-4)

1*Joint first authors and 2joint last authors*

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](http://www.nature.com/articles/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**

**2018.7.6 – 8**, Lao, J. (2018). [All that likelihood with PyMC3](https://pydata.org/berlin2018/schedule/presentation/13/). PyData Berlin.

**2017.9.4 – 5**, Lao, J., Stoll, C., Dye, M., Pascalis, O., & Caldara, R. (2017). Deafness Amplifies Visual Information Sampling during Face Recognition. 15th Biannual congress of the Swiss Psychological Society. (Lausanne, Switzerland, **oral presentation**)

**2017.8.27 – 31** Lao, J., Stoll, C., Dye, M., Pascalis, O., & Caldara, R. (2017). Deafness Amplifies Visual Information Sampling during Face Recognition. 40th European Conference on Visual Perception. (Berlin, Germany)

**2017.5.19 – 24** Lao, J., Stoll, C., Dye, M., Pascalis, O., & Caldara, R. (2017). Deafness Amplifies Visual Information Sampling during Face Recognition. *Journal of Vision,* 17(10): 24 (17th annual meeting of Vision Sciences Society, **oral presentation**)

**2017.4.20** Lao, J. (2017). Statistical Inferences of Eye movement data using Bayesian smoothing. Bayes@Lund2017. (Lund, Sweden, **oral presentation**)

**2016.5.13 – 18** Lao, J., Richoz, A-R., Stoll, C., Pascalis, O., Dye, M., & Cladara, R. (2016). Mapping the recognition of facial expression of emotions in deafness. *Journal of Vision,* 16(12): 1391 (16th annual meeting of Vision Sciences Society)

**2015.9.8 – 9** Lao, J., Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2015). *i*Map4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. 14th 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). *i*Map4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. 18th European Conference on Eye Movements. (Vienna, Austria, **oral presentation**)

**2015.5.15 – 20** Lao, J., Miellet, S., Pernet, C., Sokhn, N., & Caldara, R. (2015). *i*Map4: An Open Source Toolbox for the Statistical Fixation Mapping of Eye Movement data with Linear Mixed Modeling. *Journal of Vision,* 15(12): 793 (15th annual meeting of Vision Sciences Society)

**2015.1.24** Lao, J., & Caldara, R. (2015). Reverse correlating facial feature use in free-viewing EEG signals. Annual Meeting of Swiss Society for Neuroscience (Fribourg, Switzerland)

**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)

**2014.8.24 – 28** Lao, J., He, L, & Caldara, R. (2014). Microsaccades boost face identification as a function of culture. 37th European Conference on Visual Perception. (Belgrade, Serbia)

**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)

**2014.1.12 – 16** Lao, J., Vizioli, L., Muckli, L., & Caldara, R. (2014). Decoding Culture from the Human Primary Visual Cortex. Alpine Brain Imaging Meeting 2014. (Champéry, Switzerland)

**2013.9.11 – 12** Lao, J., He, L, & Caldara, R. (2013). Microsaccades Boost Face Identification. 13th Biannual congress of the Swiss Psychological Society. (Basel, Switzerland, **oral presentation**)

**2013.5.10 – 15** Lao, J., He, L, & Caldara, R. (2013). Microsaccades Boost Face Identification. *Journal of Vision,* 13 (9): 1344(13th annual meeting of Vision Sciences Society)

**2012.1.8 – 12** Lao, J., Vizioli, L., Rodger, H., & Caldara, R. (2012). Neural Adaptation Reveals Early Cultural Tunings in Perceptual Sensitivity to Local/Global Shapes. Alpine Brain Imaging Meeting 2012. (Champéry, Switzerland)

**2011.7.15 - 18** Lao, J., Vizioli, L., Miellet, 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**)

**2011.5.6 - 11** Lao, J., Miellet, S., Vizioli, L., Fusco, R., & Caldara, R. (2011). Eyes like it, brain likes it: Tracking the neural tuning of cultural diversity in eye movements for faces. *Journal of Vision*, 11(11): 628. (11th annual meeting of Vision Sciences Society)

**2011.3.26** Lao, J., Vizioli, L., Miellet, S., & Caldara, R. (2011). Eyes like it, brain likes it: Tracking the neural tuning of cultural diversity in eye movements for faces. Annual Meeting of Swiss Society for Neuroscience (Basel, Switzerland)

**2011.1.9 - 13** Lao, J., Vizioli, L., Miellet, 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**)

**2010.5.7 - 12** Lao, J., Foreman, K., Zhou, X., Lages, M., Hillis, J., & Caldara, R. (2010). Social judgments from faces are universal. *Journal of Vision*, 10(7): 698. (10th annual meeting of Vision Sciences Society)

**Teaching**

*(Course)*

Cognitive Neuroscience

Statistical Analysis with MATLAB

Psychology Experiment with MATLAB and Psychtoolbox-3

*(Workshop)*

[Advance Bayesian Modelling with PyMC3](https://discourse.pymc.io/t/advance-bayesian-modelling-with-pymc3/1439)

Bayesian Cognitive Modelling

Bayesian Mixed-effect model in Python

Bayesian Deep Learning using PyMC3

Statistical Fixation Mapping of Eye Movement data with *i*Map

The Wonder of Gauss: GLM, GAM, and GP

**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