Laurent U Perrinet

Researcher in Computational Neuroscience
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Research interests

I am interested in bridging the gap between the structure and the function of neural systems by showing how they optimally adapt to the statistics of natural environments.

Born: February 23rd, 1973 in Bordeaux, France
Nationality: French

Current position

since 2020 *Researcher (DR2 CNRS)*, Institut de Neurosciences de la Timone (INT).
2004-2020 *Researcher (CR CNRS)*, Institut de Neurosciences de la Timone (INT).

Areas of specialization

Spatio-temporal inference in low-level sensory areas.
Unsupervised learning in topographic maps.
Predictive processes and active perception.

Appointments held

2010–12 Visiting Scholar at Karl Friston theoretical neurobiology group, UCL (London, UK).
2004 Research Scholar, with B. Olshausen / Redwood Neuroscience Center.
1999 Research Scholar, USAFB (Rome, NY) / University of San Diego.
1997 Research Scholar, Jet Propulsion Laboratory (Nasa), Pasadena, California. Department of Terrestrial Science, Imaging Radar Laboratory
9/1995-6/96 Engineer at Alcatel, Vienna (Austria). Department of Voice Processing Systems.

Education

2014 HDR Aix-Marseille Université
1999-2003 PhD in Cognitive Neuroscience, ONERA/DTIM, Toulouse (France)
1993 - 1998 MSc in Engineering Supaéro (Toulouse, France), one of the leading French Engineering Schools ("Grandes Ecoles"). Specialization in stochastic models for signal and image processing.

Selected publications

Journal articles

2021 Victor Boutin, Angelo Franciosini, Franck Ruffier, Frédéric Chavane and Laurent U Perrinet. "Sparse Deep Predictive Coding captures contour integration capabilities of the early visual system." **PLoS Computational Biology**.

2020 Chloé Pasturel, Anna Montagnini and Laurent U Perrinet. "Humans adapt their anticipatory eye movements to the volatility of visual motion properties." **PLoS Computational Biology**.

2019 Sandrine Chemla, Alexandre Reynaud, Matteo diVolo, Yann Zerlaut, Laurent U Perrinet, Alain Destexhe and Frédéric Chavane. "Suppressive waves disambiguate the representation of long-range apparent motion in awake monkey V1." **Journal of Neuroscience**.

2017 Mina A Khoei, Guillaume S Masson and Laurent U Perrinet. "The flash-lag effect as a motion-based predictive shift." **PLoS Computational Biology**.

2015 Jonathan Vacher, Andrew Isaac Meso, Laurent U Perrinet and Gabriel Peyré. "Biologically Inspired Dynamic Textures for Probing Motion Perception." **Advances in Neural Information Processing Systems**.

2012 Karl Friston, Rick A. Adams, Laurent U Perrinet and Michael Breakspear, "Perceptions as Hypotheses: Saccades as Experiments", **Frontiers in Psychology**.

2012 Claudio Simoncini, Laurent U Perrinet, Anna Montagnini, Pascal Mamassian and Guillaume Masson, "More is not always better: dissociation between perception and action explained by adaptive gain control", **Nature Neuroscience**.

2012 Paula S. Leon, Ivo Vanzetta, Guillaume S. Masson and Laurent U Perrinet, "Motion Clouds: Model-based stimulus synthesis of natural-like random textures for the study of motion perception", **Journal of Neurophysiology**.

2010 Laurent U. Perrinet, "Role of homeostasis in learning sparse representations", **Neural Computation**.

2004 Laurent U Perrinet, Manuel Samuelides and Simon Thorpe, "Coding static natural images using spiking event times : do neurons cooperate?", **IEEE Transactions on Neural Networks**.

Book

2015 Gabriel Cristobal, Laurent U Perrinet and Matthias S Keil, editors. "Biologically Inspired Computer Vision." **Wiley-VCH** doi : 10.1002/9783527680863.

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