

Yves Boubenec

Affiliations and Academic experience

- 2016– Ass. Prof. in the Laboratory of Perceptive Systems (Audition Team – CNRS UMR 8248, IEC, ENS, Paris).
- 2013-2016 Post-doctoral research position. Mentor: Shihab Shamma (University of Maryland, College Park, USA & ENS, IEC, Paris).
- 2008–12 PhD. Mentor: Dan Shulz (UNIC, CNRS UPR 2191, Gif-sur-Yvette, France).
- 2007–08 Riken summer program (2008) and five-month internship (2007) in Hosoya's laboratory (Local Neuronal Circuits Lab, Riken BSI, Wako-shi, Japan).
- 2006 Two-month internship in John O'Keefe's laboratory, Institute of Cognitive Science London, UK.

Teaching and science popularization

- 2016– *Auditory perception in action* (Lecture: 3H), Neurosciences track, APT
Introduction to auditory neurosciences (Lecture: 3H), Neurosciences track, Biology Department, ENS
- 2015– Coordinator: *Cognitive neurophysiology of perception* (Lecture + Project supervision: 20H), CogMaster, ENS
Neurophysiology of auditory perception (Lectures: 6H), CogMaster, ENS
- 2014– *Tutorats Interdisciplinaires en Neurosciences* (Project supervision: 12H), Master IMaLiS, ENS
- 2014 *Neurophysiology of auditory perception* (Lecture: 3H), CogMaster, ENS
- 2012 *Brain week* in Palais de la Découverte: experiments and lectures
- 2011 Coordinator: visit of a neurobiology institute (INAF, Gif-sur-Yvette) by high-school students
- 2009-11 Neurobiology teaching and discussion about science and research in high-school classes (Lectures: 15H)

Education and diplomas

- 2016 Associate professor qualification in Neurosciences.
Associate professor qualification in Physiology.
Associate professor qualification in Mechanics and Civil Engineering.
- 2008–12 PhD in Neurosciences (UPMC Paris 6 & ENS). *Sampling of tactile information in rats: whisker biomechanics and exploration strategy.*
- 2006–08 M.sc. in Neurobiology (Pasteur Institute, UPMC Paris 6 & ENS)
- 2005 admitted to ENS Paris (rank admission: 5)

Publications

- Under review Bagur S, Averseng M, Elgueda D, Fritz J, Yin P, Shamma S, Ostojic S & **Boubenec Y**. Task engagement induces shift from sensory to behavioral representations in primary auditory cortex (under review in *Nature Neuroscience*).
- 2017 **Boubenec Y**, Lawlor J, Górska U, Shamma S & Englitz B. Detecting changes in dynamic and complex acoustic scenes. *eLife* 2017;10.7554/eLife.24910.

- Claverie L, **Boubenec Y**, Debrégeas G, Prevost A & Wandersman E. Whisker contact detection of rodents based on slow and fast mechanical inputs. *Front. Behav. Neurosci.*, 10:251.
- 2016 **Boubenec Y**, Lawlor J, Shamma S & Englitz B. Change Detection in Auditory Textures. *Adv Exp Med Biol.* 894:229-39.
- Demené C, Bimbard C, [...], **Boubenec Y** & Tanter M. Functional Ultrasound Imaging of the thalamo-cortical auditory tract in awake ferrets using ultrafast Doppler imaging. *IEEE International Ultrasonics Symposium, IUS*. Vol. 2016-November, 2016
- 2014 **Boubenec Y**, Claverie N, Shulz DE & Debrégeas G. An amplitude modulation/demodulation scheme for whisker-based texture perception. *J Neurosci* 34(33):10832–10843.
- 2012 **Boubenec Y**, Shulz DE & Debrégeas G. Whisker encoding of mechanical events during active tactile exploration. *Front. Behav. Neurosci.* 6:74.

Chapter

- 2014 **Boubenec Y** & Debrégeas G. Sensing through friction: the biomechanics of texture perception in rodents and primates. Chapter in Allemand, JF and Desbiolles, P (Eds.), *Physics and Biology: from Molecules to life*, World Scientific.

Oral communications (first author) and invited seminars

- 2017 Neural basis of change detection in complex and acoustic environments. NeuroSpin, Saclay, France.
- Task engagement induces shift from sensory to behavioral representations in primary auditory cortex. Brain, Learning and Computation Workshop, Bangalore, India.
- 2016 Task engagement induces shift from sensory to behavioral representations in primary auditory cortex. Frontiers in Interdisciplinary Neuroscience and Technology, Hangzhou, China.
- 2015 Change Detection in Auditory Textures. International Symposium on Hearing, Groningen, Netherlands.
- Task-related memory trace in ferret primary auditory cortex. Blitz session at the Association for Research in Otolaryngology, Baltimore, USA.
- Whisker biomechanics: last advances in physics. Donders Institute for Neuroscience, Nijmegen, Netherlands.
- 2012 Whisker biomechanics and exploration strategy in rats. Club somatosensoriel, Paris, France.

Posters (senior author)

- 2017 Averseng M, Shamma S & **Boubenec Y**. Behavior-dependent gating and extraction of task-relevant auditory signals in ferret frontal cortex. Society for Neuroscience, San Diego, USA.
- Lawlor J, Englitz B, Shamma S & **Boubenec Y**. Functional organisation of the thalamo-cortical auditory system in awake ferrets using fast ultrasound imaging. Society for Neuroscience, San Diego, USA.
- 2016 Averseng M, Shamma S & **Boubenec Y**. Task-relevant modulation of phase-locked responses in primary auditory cortex. Association for Research in Otolaryngology, San Diego, USA.
- Lawlor J, Englitz B, Shamma S & **Boubenec Y**. Change Detection in Auditory Textures. Association for Research in Otolaryngology, San Diego, USA.

Posters (presenting author)

- 2015 **Boubenec Y**, Lawlor J, Shamma S & Englitz B. Change Detection in Auditory Textures. Association for Research in Otolaryngology, Baltimore, USA.

- Bagur S, Fritz J, Elgueda D, Shamma S, Ostojic S & **Boubenec Y**. Task-related memory trace in ferret primary auditory cortex. Association for Research in Otolaryngology, Baltimore, USA.
- Bagur S, Fritz J, Elgueda D, Shamma S, Ostojic S & **Boubenec Y**. Task-related memory trace in ferret primary auditory cortex. Société des Neurosciences, Montpellier, France.
- 2011 **Boubenec Y**, Shulz DE & Debrégeas G. Pre-neuronal texture-whisker transduction in anaesthetized Rats: A predictive model of whisker deflections. 40th meeting of the Society for Neuroscience, Washington DC, USA.
- 2010 **Boubenec Y**, Débregeas G & Shulz DE, Texture-whisker transduction in anaesthetized Rats: influence of sampling conditions. Active touch sensing meeting, Royal Society, Chicheley, UK.
- 2008 Estebanez L, **Boubenec Y** & Shulz DE, Recording and replaying whisker deflections induced by textures in anaesthetized rats. ENI-Net symposia in Neuroscience, Alicante, Spain.

Scientific collaborations

- Bernhard Englitz. Department for Neurophysiology, Donders Institute for Brain, Nijmegen. Netherlands.
- Jonathan Fritz. Institute for System Research, University of Maryland. USA.
- Jean-François Léger and Laurent Bourdieu. IBENS, ENS, Paris. France.
- Kishore Kuchibhotla. Institute of Biomolecular Medicine, NYU, New York. USA.
- Arne Meyer. Gatsby Computational Neuroscience Unit, UCL, London. UK.
- Srdjan Ostojic. GNT, ENS, Paris. France.
- Michael Tantër. Institut Langevin, ESPCI, Paris. France.

Grants and fellowships

- 2017 Grant "ENS Incitative Actions" (30.000€).
- 2016 Grant "Cognitive Studies Department" (10.000€).
- 2015 Grant "Agir pour l'Audition". Shihab Shamma and Jean-François Léger (PIs). Co-investigators: Yves Boubenec and Laurent Bourdieu (300.000€, 80.000€ for the team).
- 2014 CSN II fellowship for the 2014 Telluride Workshop (USA).
- 2013– Post-doc financed by ERC ADAM (Adaptive Auditory Mind).
- 2009–12 ENS PhD fellowship ("allocation spécifique pour normaliens").
- 2008 RIKEN BSI Summer School fellowship (Japon).

Academic responsibilities

- 2017 Examiner for the jury of Élodie Tiran's PhD thesis (supervisor: Mickael tanter): Imagerie cérébrale et étude de la connectivité fonctionnelle par échographie Doppler ultrarapide chez le petit animal éveillé et en mouvement, Université Paris Diderot (Paris 7), Paris, France.
- 2017– In charge of the LSP Neuro platform (ENS).
- 2016– Member of the CogMaster pedagogic team (ENS PSL Paris V EHESS).
- 2011-12 Doctoral mission: Coordinator for an art & science festival in the Université Paris-Sud (Paris 11).
- 2010-11 Doctoral mission: Co-coordinator of an european grant proposal in UPMC (Paris 6).
- 2009-10 Doctoral mission: Reorganization of graduate student training for the Université Paris-Sud (Paris 11).
- 2005-06 Member of the scientific council of the ENS, elected by scientific students

Editorial activity

- 2015 Review editor in *Frontiers in Neuroscience and Psychology*
Reviewer for *The Journal of Neuroscience*, *The European Journal of Neuroscience*, *The Journal of Neurophysiology*, *Frontiers in Psychology*, *Frontiers in Neuroscience*, *Behavioural Processes*, *The Journal of Biomechanics*

Supervision

Post-doc

- 2016– Rupesh Kumar, co-supervised with Shihab Shamma and Srdjan Ostojic.

Graduate students

- 2015– Célian Bimbard, co-supervised with Shihab Shamma. Doctoral school: ED3C.
2014– Jennifer Lawlor, co-supervised with Shihab Shamma. Doctoral school: ED3C.
2014– Anna Ptukha, co-supervised with Pascal Mamassian. Doctoral school: ENP.

Undergraduate students

- 2017 Manuel Beiran, M2R. ENP.
Jong Lee, M2R. CogMaster, ENS.
Agnès Zagala, M1. Master BIP, UPMC.
Sourya Sengupta, L3. Jadavpur University, India.
2016– Mathieu Fehr, L3. DI, ENS.
2016 Constantin Girard, M1. APT.
2014– Sophie Bagur, M2R. Master IMaLiS, ENS.
2015-2016 Martin Averseng, M2R. Master ATIAM, UPMC & IRCAM.
2013-2014 Thomas Pagesy, M2R. Master ATIAM, UPMC & IRCAM.
2013-2014 Jennifer Lawlor, M2R. CogMaster, ENS.
2012 Camilla Pulido, Rotation student, ENP.
2011 Timothée Devaux, M1. ENS student.
2009 Sham Tlili, L3. ENS student.