

## *Curriculum Vitae*

### **Personal Details**

Surname: Sanguinetti Scheck  
Names: Juan Ignacio  
Nationality: Uruguayan  
Birth date: 30th October 1984  
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[Google Scholar Link.](#)

### **Brief Summary**

- Bachelor in Biochemistry
- Masters in Biology (Neuroethology) working on electrolocation
- PhD in Neurobiology on spatial navigation and play in rats.
- Human Frontier in Science Program (HFSP) Fellow
- Postdoc at Harvard University / HHMI
- Teaching assistant at the prestigious Transylvanian Experimental Neuroscience Summer School since 2016.
- Tenured Research Assistant (non PI) in the Faculty of Science, Uruguay. Under unpaid leave of absence.
- 12 publications (4 first author, 1 last author, 2 reviews, 5 co-author)

### **Academic Degrees**

- 2004-2009

BSc.

Bachelors Degree in Biochemistry  
Facultad de Ciencias (Faculty of Sciences),  
Universidad de la Republica, Montevideo, Uruguay.

- 2010-2012

MSc.

Masters Degree in Biology (Discipline: Neurosciences)  
PEDECIBA, Universidad de la República, Montevideo, Uruguay.  
Title: "Active electroreception: image formation, sensory cues and sensorimotor schemes."  
Supervised by: Dr. Leonel Gómez-Sena

- 2014- 2019

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Doctorate  
Humboldt University of Berlin.  
Title: "Neural basis of navigation in foraging and play"

Supervised by Prof. Dr. Michael Brecht.

## Working Experience

- 2009-2013  
Student Assistant: Grado 1 Sección Biomatemáticas, Instituto de Biología, Facultad de Ciencias.
- 2013  
Research Assistant: Grado 2, Technical informatics assistant at Centro de Investigacion Basica en Psicologia (Cibpsi, Facultad de Psicologia, UdelaR).  
<http://www.consejo.psico.edu.uy/Distribuidos/371-13.pdf>
- 2013-2019  
Research Assistant, Faculty of Life Sciences, Humboldt University of Berlin.
- 2020-2021  
Research Associate, Howard Hughes Medical Insititute (HHMI)
- 2020-present  
Postdoctoral Fellow, Harvard University, Hoekstra and Uchida Labs.

## Positions

- 2017-present  
Tenured Research Assistant via competition, Level 2, Laboratory of Neuroscience, Faculty of Sciences, Universidad de la Republica, Uruguay. (Under unpaid leave of absence)
- 2017-present  
Researcher (Associate Level 1) – National Researcher System (SNI), ANII, Uruguay

## Publications

### First Author papers

**Sanguinetti-Scheck** and Brecht. *Home, Head Direction Stability and Grid cell Distortion.* **Journal of Neurophysiology**, 2020 ,123:4, 1392-1406  
: <https://doi.org/10.1152/jn.00518.2019>

Reinhold\*, **Sanguinetti-Scheck\***, Hartmann\* and Brecht. Behavioral and neural correlates of Hide & Seek in rats, *Science*, 2019, 365(6458), 1180–1183. <https://doi.org/10.1126/science.aax4705>

\* Authors contributed equally to this work

Tang\*, Burgalossi\*, Ebbesen\*, **Sanguinetti-Scheck\***, Schmidt, Tukker, Naumann, Ray, Preston-Ferrer, Schmitz, Brecht: *Functional Architecture of the Rat Parasubiculum*, *The Journal of Neuroscience*, 2016, 36(7):2289–2301

\* Authors contributed equally to this work

**Sanguinetti-Scheck**, Pedraja, Cilleruelo, Migliaro, Aguilera, Caputi, Budelli. *Fish geometry and electric organ discharge determine functional organization of the electrosensory epithelium*. 2011, *Plos One*, 001 10.1371/journal.pone.0027470

### **Last author papers:**

Concha-Miranda, Hartmann, Reinhold, Brecht and **Sanguinetti-Scheck**. *Play, but not observing play, engages rat medial prefrontal cortex*. 2020, *European Journal of Neuroscience*. Published ahead of print. <https://doi.org/10.1111/ejn.14908>

### **Co-Author papers**

Hofmann, **Sanguinetti-Scheck**, Gómez-Sena, Engelmann. *From static electric images to image flow: towards dynamic perceptual cues in active electrolocation*. Submitted to the Journal of Physiology -Paris . *J Physiol Paris*. 2012 Jul 7. [Epub ahead of print]

Behr, Holtkamp, Neusel, **Sanguinetti-Scheck**, Budelli, von der Emde. *Mind the gap: the minimal detectable separation distance between two objects during active electrolocation*. *J Fish Biol*. 2012 Dec;81(7):2255-76. doi: 10.1111/j.1095-8649.2012.03438.x. Epub 2012 Sep 11.

V. Hofmann, **J. Sanguinetti-Scheck**, S. Künzel, B. Geurten, L. Gómez-Sena, J. Engelmann: *Sensory flow shaped by active sensing: sensorimotor strategies in electric fish*. *J Exp Biol*. 2013 Jul 1;216(Pt 13):2487-500. doi: 10.1242/jeb.082420. Review..

Hofmann V, Geurten BR, **Sanguinetti-Scheck JI**, Gómez-Sena L, Engelmann J. *Motor patterns during active electrosensory acquisition*. *Front Behav Neurosci*. 2014 May 28;8:186. doi: 10.3389/fnbeh.2014.00186. eCollection 2014.

Gómez-Sena L, Pedraja F\*, **Sanguinetti-Scheck JI\***, Budelli R: *Computational modeling of electric imaging in weakly electric fish: insights for physiology, behavior and evolution*. *J Physiol Paris*. 2014 doi: 10.1016/j.jphysparis.2014.08.009.

Review.

\* Authors contributed equally to this work

Tang, Ebbesen, **Sanguinetti-Scheck**, Preston-Ferrer, Gundlfinger, Winterer, Beed, Ray, Naumann, Schmitz, Brecht, and Burgalossi: *Anatomical organization and*

*spatiotemporal firing patterns of layer 3 neurons in the rat medial entorhinal cortex*. The Journal of Neuroscience, 2015, 35(36):12346 –12354

V Hofmann, **J. I. Sanguinetti-Scheck**, J. Engelmann, L. Gómez-Sena, *Sensory flow as a basis for a novel distance cue in freely behaving electric fish*. The Journal of Neuroscience. 2016, 1361-16

## Talks

### 2012:

Towards dynamic perceptual cues in active electroreception: modeling of electric image flow based on sensory related behavior.

ICN 2012 Satellite: International Workshop in Robotic Electrosense. College Park, Maryland. **Oral presentation.**

Busqueda de claves dinámicas en electrorecepción activa: modelando el flujo sensorial eléctrico del comportamiento de libre inspección de objetos . Congreso de la Sociedad Argentina de Biología, 2012, Buenos Aires. **Oral Presentation.**

### 2019:

Neural bases of Navigation in Foraging and Play.  
University of California- Berkeley.  
Postdoctoral Seminar.

Neural bases of Navigation in Foraging and Play.  
University of California- San Diego.  
Postdoctoral Seminar.

Neural bases of Navigation in Foraging and Play.  
Weizmann Institute of Science. Rehovot, Israel.  
Feinberg Graduate School Funded Visit Scholarship

Rats play Hide and Seek: neural bases of playing and observing.  
Bielefeld University, Bielefeld, Germany.  
Invited Seminar.

Rats play Hide and Seek: neural bases of playing and observing.  
Nencki Institute, Warsaw, Poland.  
Invited Seminar.

Neural bases of Navigation in Foraging and Play.  
Harvard University  
Postdoctoral Seminar.

## Selected Conference Posters

**Juan I. Sanguinetti-Scheck**, V. Hofmann, J. Engelmann, L. Gómez-Sena Active electrolocation in *Gnathonemus petersii*: modelling electric flow based on sensory related behavior. International Fellows Poster Session. Neuroscience Meeting 2011. Washington, D.C.

**Juan I. Sanguinetti-Scheck**; Federico Pedraja; Esteban Cilleruelo; Adriana Migliaro; Pedro Aguilera; Angel Caputi; Ruben Budelli. Fish geometry and electric organ discharge determine differential functions of the electrosensory epithelium. Neuroscience 2011 , Washington DC , 2011

**Juan I. Sanguinetti-Scheck**, V. Hofmann, J. Engelmann, L. Gómez-Sena. Towards dynamic perceptual cues in active electroreception: modeling of electric image flow based on sensory related behavior. ICN 2012: International Congress of Neuroethology, College Park, Maryland, USA.

**Juan I. Sanguinetti-Scheck**, V. Hofmann, B. Geurten, J. Engelmann, L. Gómez-Sena. Búsqueda de claves dinámicas en electrorecepción activa: modelando el flujo sensorial eléctrico del comportamiento de libre inspección de objetos . Congreso de la Sociedad Uruguaya de Biociencias, 2012. Hotel Argentino, Piriápolis. **(Best poster award)**

**Juan I. Sanguinetti-Scheck** and Michael Brecht. Effect of Home Location on Parasubicular Grid Cells, Neuroscience 2017 , Washington DC , 2017

**Juan I. Sanguinetti-Scheck** and Michael Brecht. Effect of Home Location on Parasubicular Grid Cells, Grid Cell Meeting 2018, London SWC , 2018

**Juan I. Sanguinetti-Scheck**, Annika Reinhold, Konstantin Hartmann and Michael Brecht. *Behavioral and neural correlates of Hide and Seek in rats*. ASAB Summer Conference, Konstanz, Germany, 2019

**Juan I. Sanguinetti-Scheck**, Miguel Concha-Miranda, Konstantin Hartmann, Annika Reinhold and Michael Brecht. *Neural correlates of 'hide and seek' in medial prefrontal cortex*. Neuroscience 2019, Chicago, 2019

## Honors and Awards

- 2011

Awarded a National Scholarship by the ANII (National Association of Research and Innovation) to complete his Masters Degree in Biology.

- 2011

Received the “Hugo Arrechiga Fellowship” of the Society for Neuroscience to attend the annual meeting of the SfN, Neuroscience 2011 along with a two year membership to the Society for Neuroscience.

- 2012

Was awarded with best school project at the Latin American School of Computational Neurosciences (LASCON 2012).

- 2012

Received “Best Poster Award” at the National Congress of Biosciences, SUB, Piriápolis, 2012. (Total number of posters participating 350).

- 2019

*Feinberg Graduate School Visit Scholarship (Weizmann Institute of Science)*

- 2021

*Human Frontier Science Program Long-term postdoctoral fellowship award*

## **Teaching**

- 2010

Teaching assistant for Undergraduate course: Neurociencias I, Fcien, UdelaR, Montevideo.

- 2011

Assistant in MATLAB programming course, Fcien, UdelaR, Montevideo.

- 2012

Assistant in Mathematics for Cognitive Sciences course, NICC, UdelaR.

- 2013-2019

Assistant in Animal Physiology course for Bachelor in Biology, Humboldt University, Berlin.

- 2013-2019

Assistant in “Acquisition and Analysis of Neural Signals” course for the Masters in Computational Neuroscience, Bernstein Center for Computational Neuroscience, Berlin.

- 2016

Organizer and teacher of “London 2016 Bonsai Workshop” , Sainsbury Wellcome Center, University College London, London.

- 2016-present

Teaching Assistant at the 2016 Transylvanian Experimental Neuroscience Summer School.

Topics taught: Basic Microscopy, Fluorescence Microscopy, 2-Photon in vivo Microscopy, Open source behavior, open source extracellular recordings, optogenetics.

- 2017

Co-Organizer and Teacher of “Introduction to Bonsai” workshop in the Aspects of Neuroscience Conference, Warsaw, Poland. <http://neuroaspects.org/introduction-to-bonsai>

- 2018

Organizer and Teacher of “Introduction to Bonsai” workshop in the Aspects of Neuroscience Conference, Warsaw, Poland. <http://neuroaspects.org/introduction-to-bonsai>

## **Scientific Organization**

- 2011 – 2013

Co-Organizer of the Brain Awareness Week- Uruguay

- 2016

Organizer of the Bernstein Conference PhD Symposium.

- 2016-present

Organizer of course structure and material at the Transylvanian Experimental Neuroscience Summer School.

## **Outreach**

- 2010 – 2013

Brain Awareness Week- Uruguay

- 2013

Contribution to Conciencia3, museum exposition by CIENCIA VIVA, Interactive Exposition on visual perception of moving objects.

## **Press Outreach**

- 2014

Outreach regarding 2014 Nobel Prize in Medicine. (SPANISH)

[http://www.180.com.uy/articulo/51794\\_Del-alzheimer-a-la-robotica-los-impactos-del-GPS-cerebral](http://www.180.com.uy/articulo/51794_Del-alzheimer-a-la-robotica-los-impactos-del-GPS-cerebral)

- 2018

Radio Interview about Grid Cells for Oceano FM Uruguay. (SPANISH)

<https://oceano.uy/justiciainfinita/que-estudian-los-que-estudian/12537-el-gps-cerebral>

- 2018

Radio Interview for Sobreciencia, Radio Oriental, Uruguay. (SPANISH)

<https://www.sobreciencia.uy/investigador-uruguayo-estudia-en-alemania-la-percepcion-de-la-espacialidad-de-los-mamiferos/>

- 2019

Interview with Ed Yong from “The Atlantic” about Hide and Seek in rats and play.

<https://www.theatlantic.com/science/archive/2019/09/why-scientists-taught-rats-play-hide-and-seek/597799/> (ENGLISH)

- 2019

Interview with Ira Flatow from the WNYC radio show “Science Friday” about animal play. <https://www.sciencefriday.com/segments/rats-hide-and-seek/> (ENGLISH)

