



# Brijesh Modi

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**Gender:** Male **Date of birth:** 12/05/1994

## EDUCATION AND TRAINING

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[ 2018 – Current ] **Doctoral Candidate**  
*Sapienza University of Rome, Italy*

[ 2012 – 2016 ] **Bachelor of Computer Engineering**  
*University of Mumbai, India*

[ 2010 – 2012 ] **Higher Secondary Certificate (H.S.C)**  
*Maharashtra State Board, India*

## WORK EXPERIENCE

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[ 01/2018 – Current ] **Ph.D Student**  
*European Brain Research Institute, Rome, Italy*

### Main activities and responsibilities:

*Supervisors: Dr. Enrico Cherubini and Dr. Marilena Griguoli*

Project: Altered CCK mediated GABAergic currents and network oscillations in CA2 region of an animal model of Autism

- Prepared acute brain slices, performed patch clamping to study synaptic transmission in CA2 of mice hippocampus
- In-vivo experiments from awake head restrained mice
- MATLAB scripts to analyze the data.
- PCR to assess genotype.

[ 01/2020 – 06/2020 ] **Visiting Research Fellow**  
*Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands*

### Main activities and responsibilities:

*Supervisor: Dr. Francesco Battaglia*

Project: Intrinsic organization of hippocampal oscillations

- Developed advanced analysis pipelines to study the co-organization of hippocampal network oscillations.
- Learned new techniques for in-vivo electrophysiology recordings in freely moving mice.
- Funded by EMBO short term fellowship.

[ 09/2016 – 08/2017 ] **Research Intern**

***Max Planck Institute for Brain Research, Frankfurt am Main, Germany***

**Main activities and responsibilities:**

*Supervisor: Dr. Hiroshi Ito*

Project: Role of retrosplenial cortex in spatial navigation.

- Built tetrode drive and performed surgery on rat for implantation.
- Trained rats and conducted electrophysiological recordings in freely behaving rats.
- Wrote MATLAB scripts to analyze the data.
- Performed perfusion to extract brain and brain slicing to confirm implant locations

[ 09/2014 – 05/2016 ] **Founder and Lead Developer**

***Nuclei Technologies, Mumbai, India***

**Main activities and responsibilities:**

- Organized and conducted developer oriented workshops on PHP.
- Built and managed a team of 12 marketing Interns from multiple colleges
- Product - **Cloud Concessions**. - An online portal that allows students to apply for railway concession. The first software of its kind is currently (as of Jan 2019) being used by more than 2000 students to get railway concession.
- Web: [vesitrail.ves.ac.in](http://vesitrail.ves.ac.in)

[ 05/2013 – 05/2015 ] **Volunteer and Application Developer**

***Vivekanand Seva Mandal (NGO), Dombivli, India***

**Main activities and responsibilities:**

- Volunteered in NGO's activity
- Involved in developing application for an engineering library governed by Vivekanand Seva Mandal
- Workshop on LAN technologies and setting up of LAN for around 40 students.
- Project: Library management system based on HTML, CSS, jQuery, AJAX, JavaScript, PHP and MySQL is now running in an Vivekanand's Engineering library. All the records of students, transactions, calculation of late fees, registering a new member etc in library is now managed on this web application

[ 01/2014 – 07/2014 ] **Software Engineering Intern**

***Tantra Gyan India Business Solutions, Dombivli, India***

**Main activities and responsibilities:**

- Developed web applications using CodeIgniter framework in PHP.
- Designed database in MySQL
- Projects includes Virtual office [Enterprise Resource Plan] and Online Test System.

[ 09/2013 – 04/2014 ] **Web Editor**

***Computer Society of India, Mumbai, India***

**Main activities and responsibilities:**

- Involved in designing the wireframes for the website of CSI-VESIT (student chapter).
- Assisting in all events conducted by the council. The council conducted 23 events throughout the academic year.
- Conducted workshops on PHP/MySQL and PC Assembling
- Teaching Assistance in workshop on FLASH and .NET Framework.
- Participated in sponsorship drives to various locations in Mumbai to get sponsorship for events.

***Notemybook, Mumbai, India***

**Main activities and responsibilities:**

- Involved in sharing technical ideas with a startup 'notemybook.com'.
- Developed the user interface for the notemybook.com
- Involved in monitoring the technical requirements of the company and providing appropriate solutions for it.

## **PUBLICATIONS**

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### **Publications**

- **Modi B**, Guardamagna M, Stella F, Griguoli M, Cherubini E, Battaglia F. Intrinsic organization of hippocampal oscillations. (manuscript in preparation)
- **Modi B**, Cherubini E. Network and Population State Dependent Nature of Hippocampal Sub-Population Recruitment (manuscript in preparation)
- **Modi B\***, Pimpinella D\*, Pazienti A, Zacchi P, Cherubini E, Griguoli M (2019) Possible implication of the CA2 hippocampal circuit in social cognition deficits observed in the neuroligin 3 knock-out mouse, a non-syndromic animal model of Autism. *Frontiers in Psychiatry* ( \* = equal contribution) [\[Link\]](#)

## **HONOURS AND AWARDS**

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### **Fellowships**

- EMBO – Short Term Fellowship (Host PI: Dr. Francesco Battaglia) [2020]
- European Brain Research Institute Fellowship, Rome, Italy [Jan 2018 - Dec 2019]

## **SKILLS**

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### **Programming and Experimental**

- *Programming*: MATLAB (advanced), Python (basics), PHP, HTML, CSS
- *Ex-vivo electrophysiology*: Preparation of healthy hippocampal slices, whole cell patch clamp, immunohistochemistry, PCR for genotyping.
- *In-vivo electrophysiology (head-restrained)*: Implanting head bar, training mouse for head fixation, recordings in anesthetized and awake conditions.
- *In-vivo electrophysiology (freely moving)*: Building tetrode drive, surgical implantation of drive for chronic recordings, animal handling and behavioral training, electrolytic lesion and brain extraction for reconstruction of tetrode tracks.

## **ACHIEVEMENTS (PRO-GRAMMING)**

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### **Competitive Coding**

- Finished in top 10 amongst 25000 in C and FOSS Python Competition by University of Mumbai.
- 1st Runner Up at *Algorithms 1.0* intercollegiate hackathon organized by AIKTC - Programmers club

### Workshops

- PHP and MySQL Workshop (16 hours) - Nuclei Technologies
- Establishing Local Area Network (LAN) for 40 students- Vivekanand Seva Mandal (NGO).
- Workshop on PC Assembly and PHP/MySQL -- Computer Society of India (CSI)- VESIT
- Teaching Assistant -- JAVA and Android Programming - notemybook.com