Curriculum vitae

PERSONAL INFORMATION   Brijesh Modi

WORK EXPERIENCE

Jan 2020–Present   **Visiting Research Fellow**

Donders Institute for Brain, Cognition and Behavior, Nijmegen (Netherlands)

Supervisor: Dr. Francesco Battaglia

Project: Hippocampal network dynamics during object space exploration

- Developing advanced analysis pipelines for hippocampal neural population and network state analysis during object space exploration.
- Learning new techniques for in-vivo electrophysiology recordings in freely moving mice.

Nov 2018–Present   **Ph.D Student**

European Brain Research Institute, Rome (Italy)

Supervisor: Dr. Enrico Cherubini and Dr. Marilena Griguoli

Project: Role of hippocampal microcircuits in social memory and its alterations in animal models of autism.

- Prepared acute brain slices, performed patch clamping to study role of interneurons and pyramidal cells in CA2
- In-vivo experiments from anesthetized and awake head restrained mouse
- MATLAB scripts to analyze the data.
- PCR and Immunohistochemistry to assess genotype and cell types respectively

Jan 2018–Oct 2018   **Research Fellow**

European Brain Reseach Insitute, Rome (Italy)

Same as above.

Sep 2016–Aug 2017   **Research Intern**

Max Planck Institute for Brain Research, Frankfurt am Main (Germany)

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
- Key findings: Presence of head direction, place, speed, movement direction, border signals existing either independently or in conjunction in rat's retrosplenial cortex.

Sep 2014–May 2016   **Founder**

Nuclei Technologies, Mumbai (India)

- Organized and conducted developer oriented workshops in 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

| Dec 2015–Jan 2016 | Intern |

Intern

Indian Statistical Institute, Kolkata (India)

Supervisor: Dr. Ashish Ghosh

- Studied Multilayer Perceptron, Support Vector Machines, Radial Basis Functions and Committee machines.
- Studied and demonstrated the vanishing gradient problem

May 2013–May 2015 **Volunteer and Appilcation Developer**

Vivekanand Seva Mandal (NGO), Dombivli (India)

- Voluteered in NGOs 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

Jan 2014–Jul 2014 **Software Engineering Intern**

Tantra Gyan India Business Solutions, Dombivli (India)

- Developed a web applications using CodeIgniter Framework in PHP.
- Projects:
  - Virtual office [Enterprise Resource Plan]
  - Online Test System.

Sep 2013–Apr 2014 **Web Editor**

Computer Society of India - Student Chapter - VESIT, Mumbai (India)

- Involved in designing the wireframes for the website of CSI-VESIT.
- 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.

EDUCATION AND TRAINING

2018–Present **Ph.D Student**

University of Rome, La Sapienza, Rome (Italy)

2012–2016 **Bachelor of Computer Engineering**

University of Mumbai, Mumbai (India)

Final Grade : 8.13 / 10

| 2010–2012 | **Higher Secondary Certificate (H.S.C)** |

Maharashtra State Board, India, Mumbai (India)

Ramniranjan Jhunjhunwala College, Mumbai

Final Grade : 88.5 %

PERSONAL SKILLS

Mother tongue(s)   Gujarati, Hindi

Foreign language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
English				
C2	C2	C2	C1	C2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages - Self-assessment grid

ADDITIONAL INFORMATION

Publications
- **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)

Honours and awards
- EMBO – Short Term Fellowship (Host PI: Dr. Francesco Battaglia) [2020]
- European Brain Research Institute Fellowship, Rome, Italy [Jan 2018 - Dec 2019]
- Rajkorbhai Bhagwankala Trust, Mumbai, India [2012 - 2015]
- Shri Goghari Dasha Shrimali Gnyati, Mumbai, India [2012 - 2015]
- Shri Gohilwad Dasha Shrimali Vanik Mandal, Mumbai, India [2012 - 2015]

Skills
- *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 (LFP, juxtacellular) 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.
- *Graphics:* Graphpad Prism, Autodesk Fusion 360

Achievements (Programming)
- 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

Teaching Activities
- 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

F.to Brijesh Modi