



## Benedetta Mariani

*Born:* on 21 December 1995 | *Nationality:* Italian

📍 Department of Physics, University of Padua (Via Marzolo 8 Padua), Padova  
Neuroscience Center (Via Orus 2 Padua)

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*personal website:* <https://benedetta-mariani.github.io/>

### RESEARCH EXPERIENCES

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*October 2020 - present day*

#### PhD student in Neuroscience

Padova Neuroscience Center

Laboratory of Interdisciplinary Physics, Padova <https://www.liphlab.com/>

- Supervisor: Prof Samir Suweis
- Main research interests: combining the tools of physics of complex systems and data analysis to study collective behavior in Neuroscience and Systems biology (e.g. how information processing in neural systems is enhanced by phase transitions and synchronization phenomena)

*December 2019 – September 2020*

#### Ten months scholarship

Laboratory of interdisciplinary Physics, University of Padua

- Project title: "Criticality in rat somatosensory barrel cortex"
- Supervisors: Prof Samir Suweis and Prof. Stefano Vassanelli.

### EDUCATION

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*December 2017 – October 2019*

#### Master degree in Physics of Complex Systems

University of Turin, Italy

- Final grade: 110/110 cum laude
- Final project: "Signatures of criticality in rat brain: beyond avalanches statistics" performed at Liph Lab (Physics and Astronomy Dept, Padua) and at NeuroChip Lab (Dept. of Biomedical Sciences, Padua).

*September 2015 – December 2017*

#### Bachelor degree in Physics

University of Padua, Italy

- Final project: "Phase separation for intrinsically disordered proteins"

*October 2014 – September 2015*

#### Student of Biomedical Engineering

Polytechnic University of Milan

### PUBLICATIONS

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September 2021

#### Disentangling the role of external and intrinsic dynamics on the critical signatures of neural activity

- Bernstein Conference 2021
- [Benedetta Mariani](#), Giorgio Nicoletti, Marta Bisio, Marta Maschietto, Stefano Vassanelli, Samir Suweis,
- <https://abstracts.g-node.org/conference/BC21/abstracts#/uuid/00a75410-d18a-4ba6-a14d-aa682e2c8777>

August 2021

#### Neuronal Avalanches Across the Rat Somatosensory Barrel Cortex and the Effect of Single Whisker Stimulation

Front. Syst. Neurosci., <https://doi.org/10.3389/fnsys.2021.709677>

[Benedetta Mariani](#), Giorgio Nicoletti, Marta Bisio, Marta Maschietto, Roberto Oboe, Alessandro Leparulo, Samir Suweis, Stefano Vassanelli

September 2020 **Brain criticality beyond resting state neuronal avalanches**

- Bernstein Conference 2020
- [Benedetta Mariani](#), Giorgio Nicoletti, Marta Bisio, Stefano Vassanelli, Samir Suweis,
- <https://abstracts.g-node.org/abstracts/b9ec73de-f9db-4df2-9ab1-c08c2c532e65>

## PREPRINTS

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2021 **On the critical signatures of neural activity**

arXiv:2105.05070v2

[Benedetta Mariani](#), Giorgio Nicoletti, Marta Bisio, Marta Maschietto, Stefano Vassanelli, Samir Suweis

## TALKS, PRESENTATIONS AND POSTERS

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15th-24th September 2021

**EITN Fall School in Computational Neuroscience**

- I took part in the project group "Mean field and population models" and presented the outputs of our project.

September 2021

**Poster at Bernstein Conference 2021**

- "Disentangling the role of external and intrinsic dynamics on the critical signatures of neural activity"
- <https://abstracts.g-node.org/conference/BC21/abstracts#/uuid/00a75410-d18a-4ba6-a14d-aa682e2c8777>

31st May- 12nd June 2021

**The Beg Rohu Summer School, St. Pierre Quiberon, France**

- Poster presentation "On the critical signatures of neural activity"

14th - 16th December 2020

**Brain Hack Padova**

- I led the project group "Association of Microstructural white matter and personality traits based on Human connectome project dataset"

6th October - 9th October 2020

**Contributed talk at Brain Criticality Virtual Meeting**

- "Brain criticality beyond resting state neuronal avalanches"
- <https://braincriticality.org/2020/10/11/benedetta-mariani-brain-criticality-beyond-resting-state-neuronal-avalanches-spotlight-talk/>

29th September - 1st October  
2020

**Poster at Bernstein Conference 2020**

- "Brain criticality beyond resting state neuronal avalanches"
- <https://abstracts.g-node.org/abstracts/b9ec73de-f9db-4df2-9ab1-c08c2c532e65>

16th - 18th January 2020

**Liph Lab winter Workshop**

Folgaria (TN)

- I attended it and presented my research outputs.

## ATTENDED CONFERENCES AND SCHOOLS

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15th -24th September 2021

**EITN Fall School in Computational Neuroscience**

- I took part in the project group "Mean field and population models" and presented the outputs of our project.
- I attended lectures and tutorials on different models and softwares to simulate networks of neurons at different levels of complexity (Brian, Nest, Neuron, TVB)

September 2021

**Bernstein Conference 2021**

31st May - 12nd June 2021

**The Beg Rohu Summer School, St. Pierre Quiberon, France**

23rd February - 26th February  
2021

**Computational and Systems Neuroscience (Cosyne) 2021**

14th - 16th December 2020

**Brain Hack Padova**

- I led the project group "Association of Microstructural white matter and personality traits based on Human connectome project dataset"

18th and 19th November 2020	Physics of Brains
6th October - 9th October 2020	Brain Criticality Virtual Meeting
29th September - 1st October 2020	Bernstein Conference 2020
18th - 23th July 2020	29th Annual Computational Neuroscience Meeting, Organization for Computational Neuroscience
29th June - 3rd July 2020	Youth in High-dimensions: Machine Learning, High-dimensional Statistics and Inference for the New Generation, ICTP, Trieste
9th - 14th September 2019	Summer School in Computational and Theoretical Models in Neuroscience, European centre for living technology, Venice

## AWARDS

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| 2021 | Winner of SECS (Scholarships for Events on Complex Systems) grant, provided by the Young Researchers of the Complex Systems Society.                                    |
| 2014 | Winner of the award for the high school students with the highest final grade and honors, granted by MIUR, the Italian Ministry for Education, University and Research. |

## COMPUTER SKILLS

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| Programming Languages | <ul style="list-style-type: none"> <li>• Python: advanced level</li> <li>• C++, Mathematica, R: intermediate level</li> <li>• matlab: basic level</li> </ul> |
| Operating systems     | <ul style="list-style-type: none"> <li>• Windows: advanced level</li> <li>• Unix: advanced level</li> </ul>  |

## PERSONAL SKILLS

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| Languages known | <ul style="list-style-type: none"> <li>• Mother tongue: Italian</li> <li>• English: level B2 (First Certificate of English)</li> <li>• German: level A2 (certificate from the Goethe Institute of Bremen)</li> </ul> |
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