

ESCUELA

I Escuela de  
Neurotecnología

Neurotechnology:  
Science, Medicine,  
Marketplace and  
Ethics

### Horario y dirección de contacto

Mañana de L a V: 9.00 a 14.00 h

#### Santander

Campus de Las Llamas  
Avda. de los Castros, 42  
39005 Santander  
Tlf.: 942 29 87 00

#### Madrid

C/ de Isaac Peral, 23  
28040 Madrid  
Tlf.: 91 592 06 31 / 33

### A partir del 17 de junio

Mañana de L a V: 9.00 a 14.00 h  
Tarde de L a J: 15.30 a 18.00 h

#### Santander

Palacio de la Magdalena  
39005 Santander  
Tlf.: 942 29 88 00

alumnos@uimp.es  
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Este curso es susceptible de ser reconocido como formación permanente del profesorado para el personal docente de los centros que imparten las enseñanzas reguladas en la Ley Orgánica 2/2006, de Educación, en base al artículo 21 y 29 de la Orden EDU/2886/2011, de 20 de octubre, por la que se regula la convocatoria, reconocimiento, certificación y registro de las actividades de formación permanente del profesorado.

Código 650R - ETCS: 2,5

### Dirección

Rafael Yuste

Columbia University

Álvaro Pascual-Leone

Harvard Medical School

José Carmena

University of California, Berkeley

### Secretaría

Ander Ramos Murguialday

Tecnalia

This summer school will provide participants with an updated vision of Neurotechnology from four different angles or perspectives: the scientific and technological, the clinical, the transition to the market and the ethical. On the first day we start the course with a broad introduction to the field of Neurotechnology, defined as methods or devices to record or alter the activity of the nervous system, reviewing the most recent advances in science and technology and a plethora of applications. On the second day we will focus on state-of-the-art research represented by neurotechnology advances and experimental work happening in some of the most advanced laboratories. On the third day we will discuss with real world applications of neurotechnology to unsolved clinical problems like paralysis after spinal cord injury or stroke and their transition to the clinical practice. On the fourth day we will focus on the translation of neurotechnology to the market and interact with industry representatives. The final day will serve as a wrap-up transition to tackle the ethical and societal challenges neurotechnologies rise, discussing ethical guidelines and like neurorights. The objectives of this course are: a) to provide the audience with a multidisciplinary overview of neurotechnology; b) to highlight its clinical applications; c) to explore market transitions of neurotechnology; and d) to awaken ethical and societal discussion around neurotechnology benefits and risks.

This course is oriented to an audience interested in understanding how the direct technological interaction with the nervous system can change scientific and medical practice and also future society.

### Apertura matrícula

Desde el día 8 de abril de 2024  
(plazas limitadas)

Solicitud  
online





## Lunes 24

- Introduction to Neurotechnology
- 10.00 h Introduction to Neurotechnology  
**Rafael Yuste**
- 10.45 h Brain Health in the Age of Neurotechnology  
**Álvaro Pascual-Leone**
- 12.00 h Brain-Machine Interfaces  
**José Carmena**
- 12.45 h Translating Neurotechnology to clinical applications  
**Ander Ramos Murguialday**
- 15.30 h Panel: Training  
Moderación  
**Ander Ramos Murguialday**



## Martes 25

- Neurotechnology in the laboratory
- 10.00 h Tools for Analyzing and Repairing Brain Circuit  
**Ed Boyden**  
Massachusetts Institute of Technology
- 12.00 h Playing the piano with the brain: optical manipulations of cortical circuits  
**Rafael Yuste**
- 15.30 h Panel: Scientific applications  
Moderación  
**Ander Ramos Murguialday**



## Miércoles 26

- Neurotechnology in the clinic
- 10.00 h Translating Brain-Computer Interfaces to People with Motor Impairments  
**José R Millán Ruiz**  
Univ. Of Texas
- 12.00 h Characterizing and repairing spatiotemporal signatures of brain-related disability  
**Álvaro Pascual-Leone**
- 15.30 h Panel: Scientific applications  
Moderación  
**Ander Ramos Murguialday**



## Jueves 27

- Neurotechnology in the market
- 10.00 h Neural basis, algorithms and neurotechnology of BMI: from lab to venture  
**José Carmena**
- 12.00 h Are we getting closer to help patients with novel brain stimulation approaches? Neuroelectrics making headway in epilepsy and depression  
**Ana Maiques**  
CEO & CoFounder - Neuroelectrics
- 15.30 h Panel: Market applications  
Moderación  
**Ander Ramos Murguialday**



## Viernes 28

- Future Challenges
- 10.00 h Restoring Vision Using Optogenetic Therapy  
**Botond Miklos Roska**  
Institute of Molecular and Clinical Ophthalmology IOB, Basel
- 12.30 h Panel: Ethical issues  
Moderación  
**Ander Ramos Murguialday**



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