



The Institute of Human (ity) - centric AI (IHCAI)



ELLIS Alicante Unit  
Foundation

# EXCELLENCE IN MODERN **AI** RESEARCH



e l l i s  
ALICANTE unit



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# Artificial Intelligence is changing the world.

Artificial Intelligence (AI) is driving one of the most significant revolutions in history.

The cross-cutting nature of this discipline makes AI one of the axes of progress, with the potential to have a positive impact on all areas of society.

We live with AI almost without knowing it, enriching our daily lives, in many cases without even realising, and it offers a great opportunity for societies that want to be at the forefront. But, above all, it is an opportunity for institutions, organisations and companies working to lead the future of innovation, progress, markets, and social relevance.

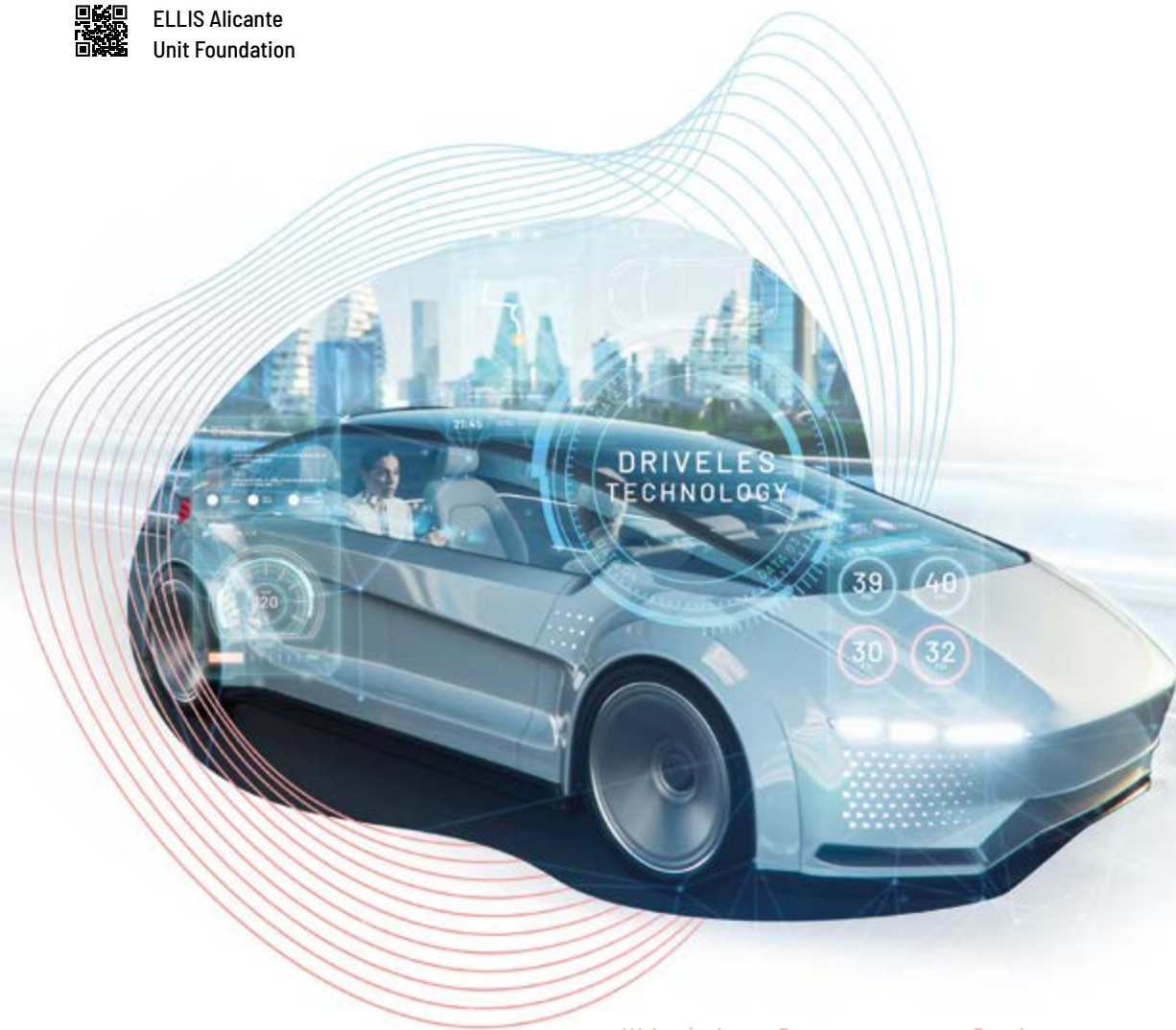
The present and the near future are defined by two letters: AI.

It is virtually impossible for society to tackle the challenges ahead without relying on Artificial Intelligence techniques [...].

AI is not in itself the solution to these challenges, but it will certainly be part of the solution to many of them.

Nuria Oliver.

Co-founder of ELLIS Europe and ELLIS Alicante.



Within Computer Science or Engineering, Artificial Intelligence is the discipline that develops intelligent computational systems taking human intelligence as a reference.

Just as human intelligence is complex and multiple, so is Artificial Intelligence, including numerous areas of knowledge that try to emulate different aspects of our intelligence, such as the ability to perceive, recognise the environment and react accordingly; the ability to plan and solve problems; the ability to constantly learn and adapt; social, emotional, musical and creative intelligence, etc...



# ELLIS

The European  
Laboratory for  
Learning and  
Intelligent Systems.

Founded in 2018  
by the **European  
scientific community**,  
ELLIS aims to make  
our continent a  
leading hub for  
excellent Artificial  
Intelligence  
research.

ELLIS focuses on excellence in fundamental research, driving the state of the art, generating technological innovation, and creating positive social and economic impact. Its creation comes from the need to **make Europe a frontrunner in AI research**, since North America and China are the global leaders in AI research, innovation, and deployment/use. Europe cannot afford not to have technological sovereignty in a field as strategic as Artificial Intelligence.

ELLIS focuses on the discipline of machine learning within Artificial Intelligence, which is the area behind the major breakthroughs in modern AI. **ELLIS' strategy is built on three pillars to reinforce Europe's technological excellence and sovereignty** in this highly competitive scenario:

- Attracting, inspiring, nurturing and **connecting Europe's best PhD students through a pan-European** PhD programme funded with 12 million euros from the European programme ELISE.
- **Connecting Europe's best researchers** through the ELLIS research programmes, made up of Fellows and Scholars, and dedicated to topics ranging from basic research in theory and algorithms to applications of AI in health and climate sciences as well as humanistic aspects of AI.
- **Creating a network of ELLIS units** located in prestigious European institutions or created from scratch to perform research of excellence in modern Artificial Intelligence in Europe. Following three competitive selection calls, ELLIS has launched 34 ELLIS units spread across 14 European countries and Israel, forming a network of excellence of AI research labs applied to various fields for the benefit of all sectors of society.

# Artificial Intelligence improves people's lives.

## AI is everywhere.

It is part of our surroundings and common in our everyday routines.

Thanks to its strong ability to learn from data, **it can recognise and predict patterns and optimise tasks**. It is part of the decision-making process, both in the public and private sectors. It is transforming all productive sectors and is therefore at the heart of the Fourth Industrial Revolution. Therefore the world's major powers are committed to investing in AI, knowing that AI leadership must be championed not only in the technological and economic sectors, but also taking into account its social, ethical, legal and regulatory impact.

Public and private entities have a key role to play in this revolution, investing in its research and leading the future.

## AI HELPS US IN OUR LIVES

### SEARCH AND RECOMMENDATION SYSTEMS

They analyse our behaviour in order to recommend content from search engines, music apps, social networks, news or friends.

### CLIMATE CHANGE

Thanks to AI, we can model the climate, predict adverse weather events, potential natural disasters and their impact.

### VOICE ASSISTANTS

We ask them to play music or tell us what the weather is like.

### INDUSTRY AUTOMATION

AI has facilitated increased productivity, competitiveness, and sustainability in the sector.

### OPTIMIZATION OF PRODUCTION PROCESSES

AI can improve demand forecasts to adjust the production and use of resources and raw materials.

### PUBLIC

Public a  
assist in ju  
provide perso  
indispensab



## TRAFFIC MANAGEMENT AND AUTONOMOUS VEHICLES

AI enables efficient traffic management, improved traffic flow and even driverless cars.

## SMART CITIES

They rely on AI to efficiently manage lighting, drinking water, pollution or other essential resources and services, improving the quality of life in these areas.

## TACKLING COVID-19

AI contributes to studying disease evolution and treatments, drug and vaccine discovery and design, pandemic curve evolution predictions, and pandemic-related public policy decisions.

## STOCK EXCHANGE AND FINANCIAL SECTOR

AI algorithms analyse large amounts of data to predict and streamline a complex decision-making environment.

## ADMINISTRATION

Administration relies on AI to aid in judicial decision-making or to personalise education. It is also used in areas such as defence and border control.

## HEALTH SECTOR

AI is a great ally for improving diagnostic systems, designing new drugs, studying DNA or supporting public health decision making. Precision medicine is not possible without the help of AI.



## A Europe-wide network of research excellence.

All ELLIS units form a network of research excellence based on the pooling of talent and the exchange of knowledge, which are our two great strengths.

Our raison d'être and work is AI research based on Machine Learning.



### ELLIS UNITS IN EUROPE AND ISRAEL

- |               |                      |                              |                 |                |
|---------------|----------------------|------------------------------|-----------------|----------------|
| 1. Alicante   | 8. Edinburgh         | 15. Helsinki                 | 22. Munich      | 29. Tübingen   |
| 2. Amsterdam  | 9. Lausanne (EPFL)   | 16. Vienna (IST 17. Austria) | 23. Nijmegen    | 30. Turin      |
| 3. Berlin     | 10. Zürich (ETH)     | 17. Leuven                   | 24. Oxford      | 31. Stuggart   |
| 4. Cambridge  | 11. Freiburg         | 18. Linz                     | 25. Paris       | 32. Jena       |
| 5. Copenhagen | 12. Genova           | 19. Lisbon                   | 26. Prague      | 33. Milán      |
| 6. Darmstadt  | 13. Haifa (Technion) | 20. London (UCL)             | 27. Saarbrücken | 34. Manchester |
| 7. Delft      | 14. Heidelberg       | 21. Modena (Unimore)         | 28. Tel Aviv    |                |



At ELLIS, we will drive Europe towards leadership in AI research to lead the scientific revolution that is changing the world.

### ELLIS' activity focuses on:

ELLIS' **vision** is to undertake free and open research of excellence so that Europe may influence how modern AI is changing the world. To establish an open and cooperative system that allows basic research to have a practical application, with a positive economic and social impact.

To achieve this, ELLIS is on a **mission** to become the leading employer and generator of talent in excellent Machine Learning-based AI research. We must rely on the vast experience of universities, through an attractive European doctoral programme, with the capacity to recruit the best graduates who will continue to drive our vision for generations to come.

**Fostering talent** through its PhD programme and research programmes, which are of great interest to the international scientific community, ranging from basic AI research to applications in health, climate, or human-centric sciences. The researchers affiliated with ELLIS are internationally renowned scientists.

**Attracting, retaining, and nurturing** excellent research talent in Europe, offering internationally competitive salaries and participation in major research programmes.

**Fostering innovation** along with our industrial partners, supporting their projects and working together. We encourage the creation of new companies that contribute to stimulating European economic growth.

**Implementing PhD programmes** to attract and retain the best students in Europe.

**Disseminating and spreading** knowledge to convey AI research to other scientific communities and society.

**Advising** public and private entities for which AI can be a benefit or competitive advantage.



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# ELLIS Unit Alicante

The Institute  
of Human(ity)-  
Centric Artificial  
Intelligence.

The ELLIS Unit Alicante Foundation (or ELLIS Alicante) is one of the 34 units that make up this network that extends across Europe and Israel.

We are the only Spanish city selected by this research excellence initiative and the only unit created from scratch, with the spirit of a scientific start-up.

Our name, The Institute of Human(ity)-centric AI (IHCAI), defines what and how we want to play our part in this 21st century society. **We strongly believe in the power of technology as a generator of progress and universal well-being.**

We aim to be the European and global benchmark in AI research by and for people. We are the only ELLIS unit dedicated exclusively to this subject.

## At ELLIS Alicante, we address three important areas of research:

- 1. Computational modelling of human behaviour** using AI techniques both on an individual and an aggregated level. This research area consists of automatically learning individual models to improve people's lives by recognising and predicting their behaviour. Practical applications are diverse, ranging from the development of algorithms that generate recommendations for users or accurate and fair credit models to foster financial inclusion. On an aggregated level, it allows the modelling and prediction of human behaviour on a large scale, across a country or a region, thus addressing challenges such as pandemics, detecting potential economic crises or responding to natural disasters.
- 2. Development of smart interactive systems,** with a special focus on the development of smartphones, personal assistants and chatbots.
- 3. Ethical challenges of today's AI systems** such as algorithmic discrimination, violation of privacy, opacity, lack of veracity or the subliminal manipulation of human behaviour. Current AI algorithms are not invincible and have limitations that are important to identify and address in order to make their use inclusive and people centred.



Adopting AI in production processes, institutions and its multiple applications in civil society could double the GDP growth rate in Spain and generate one million jobs.

### Artificial Intelligence Strategy of the Valencian Autonomous Region.

We work with the Valencian Regional Government and are part of the Artificial Intelligence Strategy of the Valencian Autonomous Region. This strategy aims to improve the quality of Valencian people's lives and foster economic growth in the region through investment in research, innovation and the deployment of AI in the Valencian productive fabric, an AI that is competitive, inclusive and focused on people and the planet.

The ELLIS Unit Alicante Foundation and the Valencian Regional Government share the goal of making the study and application of AI a tool for the improvement of the environment and society. ELLIS Alicante also collaborates and works with researchers from different Spanish and international universities and research institutions, following a collaborative and open research model.





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# ELLIS Unit Alicante during the Pandemic

The health crisis has been ELLIS Alicante's research priority, developing a multi-disciplinary, multi-institutional project with world-recognized activities, such as winning the XPRIIZE Pandemic Response Challenge and launching one of the largest citizen surveys: The COVID19IMPACTSURVEY.



ELLIS Alicante started its activity in the midst of the COVID-19 pandemic. This was a time of health and socio-economic crisis, which opened up a testing field and the possibility to put into practice the value and capabilities of AI to support the decision-making processes of public administrations and private organisations.

In collaboration with several universities and research centres in the Valencia Region, we developed AI models to predict the evolution of the pandemic and hospital occupancy, systems to recommend actions, analysed large-scale human mobility and launched an online citizen survey to understand the impact the pandemic is having on people's lives.

This initiative, carried out with the collaboration and support of the Valencian Regional Government, was a global frontrunner and also received competitive funding from the CRUE/Banco Santander Supera Fund and the BBVA Foundation.



To consult the answers and results of the project please scan the QR code.



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# Diversity at ELLIS Alicante

Diversity is a fundamental pillar in ELLIS Alicante, as well as in ELLIS Europe. ELLIS Alicante strongly believes in the importance of having diverse teams and the need to attract more female scientists to Artificial Intelligence.

## **FEMALE EMPOWERMENT +D4**

This women's thought leadership project includes four women (sociologists, political scientists, and technologists) working together to reflect on the COVID-19 crisis.

They contribute ideas, new visions and proposals that can influence both opinion forming and the design and materialisation of new public policies. The team has recently written 8 articles for the Spanish newspaper EL PAIS.



For more information and details on this project, please scan the QR code.

# Collaborate with ELLIS Alicante

Investment in AI  
has a powerful  
strategic value  
that we can  
all apply and  
capitalise on.

Contributors to the development of ELLIS will be the protagonists of the changes and new paradigms that AI is generating..

Collaborating in AI research is a present-day commitment to a more prosperous and sustainable future. It means being at the forefront of the most important technological revolution in history, one that is transforming and will transform cities, countries and societies, allowing us to address the immense challenges we face.

Europe has significant potential to be at the forefront of AI: it has major research centres, start-ups and is a global leader in robotics and sectors, such as the automotive, energy and healthcare sectors. However, achieving this potential requires significant public-private investment. Efforts by governments and businesses will help to foster talent, facilitate access to data and ensure public confidence in a discipline that is changing the world. Not only our economy and employment depend on it, but also our very survival as a species.

## From an economic point of view, Artificial Intelligence is a great investment for the future.

It is estimated that **Artificial Intelligence will generate more than 15 trillion dollars globally by 2030** across all public and private domains (fig.1). It will boost productivity through automation processes and society will increasingly demand products and services enriched with Artificial Intelligence. AI has the potential to double the growth rate of countries, as indicated by the Accenture and Frontier Economics study (fig.2).

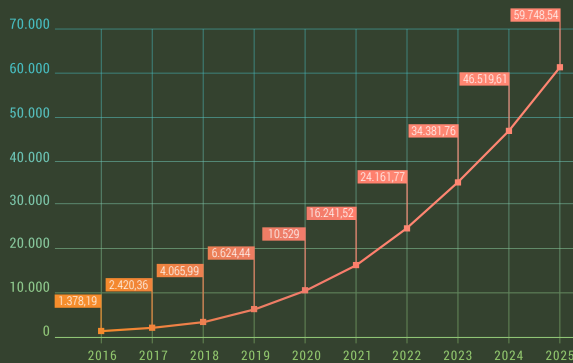


Fig.1 - Estimate of the size of the global artificial intelligence market in millions of US dollars. (Source: Statista)

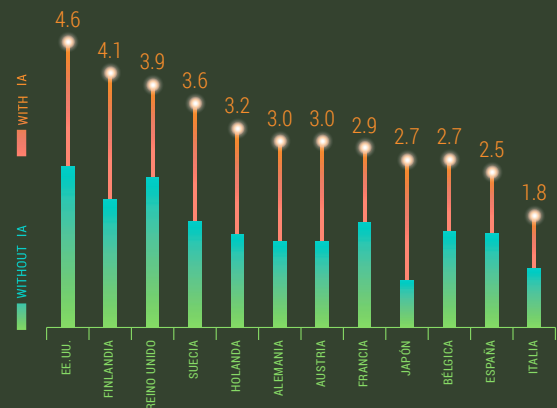


Fig.2 - Estimation of the gross domestic product (GDP) of different world economies (including Spain) according to their capacity to adopt AI or not (Source: Accenture y Frontier Economics)



# Sponsorship Programme

Leading AI research is synonymous with cutting-edge. Join the research elite that will drive your business forward.

Being part of the ELLIS network yields rewards that go beyond AI implementation. It establishes a commitment to research excellence that empowers the sponsoring company or entity as a social agent involved and participating in projects with great potential for impact.

By doing so, your brand adheres to the most appreciated and recognised values in the market: innovation, technology, talent, science and knowledge, international projection, excellence, etc. Values that will make you grow exponentially in both prestige and reputation.

Sponsoring ELLIS Alicante means sponsoring ELLIS Europe. Our sponsorship programme offers various forms of support and collaboration with the unit that offer attractive benefits:

- Propose research challenges within the lines of research of ELLIS Alicante<sup>(1)</sup>.
- Access to research results by visiting ELLIS Alicante and participating in congresses and workshops organised by ELLIS Alicante and ELLIS Europe.
- International visibility and recognition through ELLIS Alicante and ELLIS Europe by means of their communication platforms.
- Tax benefits by contributing financially to a non-profit research foundation.
- Attendance at our presentations and events.
- Opportunities to support our PhD students and sponsor the best talent in the world.

Moreover, each partner is unique to us, so we offer personalised benefits depending on the type of sponsorship and the characteristics of your organisation. Companies are free to negotiate with ELLIS units regarding the level of sponsorship, how the sponsorship money is spent or what the unit will offer in terms of specific benefits.

The different collaboration options allow any individual, institution, or company to be involved in AI research and development in one of the most vibrant, reputable and strongest projects in Europe. You can lead research excellence in artificial intelligence and be part of Europe's most powerful network of modern AI research.

**It is certainly a unique opportunity to be part of the research elite in human-centric Artificial Intelligence.**

(1) Only for Platinum and Gold sponsors.



# Contact

## ELLIS Alicante Unit Foundation

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# SPONSORSHIP PROGRAMME ELLIS UNIT ALICANTE

## SUPPORTED BY

Europe ELLIS



ELLIS Alicante



**500.000 €** first year

**200.000 €** following years

**100.000 €/year**  
+ 20.000 € for ELLIS + IVA

**4 grants** Doctorate/postdoc  
+ 20.000 € for ELLIS + IVA

**50.000 €/year**  
+ 10.000 € for ELLIS + IVA

**2 grants** Doctorate/postdoc  
+ 10.000 € for ELLIS + IVA

**25.000 €/year**  
+ 10.000 € for ELLIS + IVA

**1 grant** Doctorate/postdoc  
+ 5.000 € for ELLIS + IVA

**5.000 € - 25.000 €**

**Up to 5.000 €**

## PLATINUM

- Option to join the ELLIS Alicante Board of Trustees.
- Logo in communication activities and materials.
- Unlimited visits to our HQ.
- Preferential access to training (workshops, events...).
- Advert in Newsletter.
- Possibility of proposing challenges aligned with the unit's research areas.

## GOLD

- Logo in communication activities and materials.
- Annual visit to our HQ with the other Gold sponsors.
- Preferential access to training (workshops, events...).
- Advert in Newsletter.
- Possibility of funding lines of research and internships.

## SILVER

- Logo in communication activities and materials.
- Preferential access to training (workshops, events...).
- Advert in Newsletter.

## BRONZE

- Logo in communication activities and materials.
- Preferential access to training (workshops, events...).
- Advert in Newsletter.

## FOUNDATION FRIENDS

- Recognition on website and in the annual report.

## MICROFUNDING

- Recognition on website and in the annual report.



**[ellisalicante.org](http://ellisalicante.org)**