# ELLIS PHD AND POSTDOC PROGRAM

Information for applicants 2022



# TABLE OF CONTENTS

01

02

03

04

## **ABOUT**

- + About ELLIS
- + PhD & Postdoc Program
- + Two tracks

# **APPLICATION**

- + Joining ELLIS
- + Requirements
- + Central
- Application
- + Nomination

# GOOD TO KNOW

+ Frequently
Asked Questions

## CONTACT

- + PhD & Postdoc Committee
- + Coordination

# O1 ABOUT

# **ABOUT ELLIS**

ELLIS – the European Laboratory for Learning and Intelligent Systems – is a European AI network of excellence that focuses on fundamental science, technical innovation and societal impact. ELLIS builds upon machine learning as driving modern AI — inspired by a model of human intelligence which is not 'programmed' but which is shaped by and learns from data.

ELLIS aims to benefit Europe in two ways: (1) We want the best basic research to be performed in Europe, to enable Europe to shape how machine learning and modern Al change the world. (2) We want to have economic impact and create jobs in Europe, and believe this is achieved by outstanding and free basic research.

#### ELLIS UNITS ellis.eu/units

Highly innovative ecosystems emerge at outstanding academic institutions, which serve as international talent magnets and incubators of innovation. Thus, rather than just building a virtual network amongst institutions, ELLIS is creating new working environments for outstanding researchers to enable them to combine cutting-edge research with the creation of start-ups and industrial impact. ELLIS Units bring together the best AI researchers at their locations and fulfill a set of criteria to ensure excellence and to be maximally competitive at the international level.

#### PROGRAMS ellis.eu/programs

ELLIS is establishing a European network of top researchers working at locations throughout Europe, who are organized into ELLIS Programs. These Programs focus on high-impact problem areas that have the potential to move the needle in modern Al. Currently, there are 12 ELLIS Programs, ranging in focus from health to computer vision, to earth and climate sciences.

#### FELLOWS AND SCHOLARS ellis.eu/fellows

ELLIS Fellows advance science and act as ambassadors of ELLIS. They provide strategic advice and leadership not just scientifically, but also in terms of how to build and grow a network of excellence. ELLIS Scholars are outstanding junior scientists, often assistant professors, who do not yet have the seniority of a Fellow but are on a clear trajectory to reach this level.

# PHD & POSTDOC PROGRAM

The ELLIS PhD & Postdoc Program supports excellent young researchers across Europe by connecting them to leading researchers and offering a variety of networking and training activities, including boot camps, summer schools and workshops.

Facilitating collaboration among top talent is part of ELLIS's DNA: ELLIS PhD students and postdocs are supervised by one ELLIS fellow, scholar or unit faculty and one ELLIS fellow/scholar/member from different, partnering institutions. They conduct cutting-edge, curiosity-driven research in machine learning or related fields and conduct their research at both partner institutions during their appointment.

#### JOIN ELLIS AND SHAPE THE FUTURE OF AI

What's in it for you? ELLIS is not only a brand of scientific excellence, it takes the education and training of its junior researchers seriously. ELLIS seeks to attract the world's brightest minds and helps them become the future leaders in Al. As an ELLIS PhD student or postdoc, you will enjoy the benefits of:

- a growing international network of over 300 leading machine learning researchers in academia and industry
- joint supervision by leading researchers in your field of interest
- collaboration with top research groups
- access to summer schools, bootcamps, networking events and workshops
- funding (through your advisors' resources) to conduct curiosity-driven fundamental research and to attend conferences
- access to high-end infrastructure
- contributing to society by working on high-impact challenges and developing ethical and trustworthy AI, the trademark for AI "made in Europe"

#### HOW TO JOIN ELLIS AS A JUNIOR RESEARCHER

Currently, there are two ways to become an ELLIS PhD student or postdoc: via our **central application** process (deadline once a year in fall, new PhD students) or year-round via a **nomination process** (PhD students and postdocs who are already working with ELLIS fellows/scholars/members). See the next section for details.

# TWO TRACKS

Within the ELLIS PhD & Postdoc Program, there are two tracks: the academic track and the industry track. These tracks have separate requirements for admission and criteria for activity during the appointment, but otherwise offer the same benefits, network and resources to the applicant.

The academic track is based on a collaboration between 2 top European academic institutions (e.g. universities) in different European countries, with one advisor from each institution supervising the research.

The **industry track** is based on a collaboration between 1 top European academic institution and 1 European industry player (e.g. a university and a company).

#### **ACADEMIC TRACK**

PhD students and postdocs in the academic track strive for international collaboration as they partner with two European academic institutions in their research. These candidates are supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member, each from different European countries and academic institutions. During their appointment, PhD students and postdocs will visit the secondary partner institution for an extended research stay of at least 6 months, where they will have first-hand access to the facilities and network of the partner.

#### INDUSTRY TRACK

The industry track aims to facilitate collaboration between European academic institutions and industry with the understanding that a vibrant and interactive ecosystem is key to stimulating innovation. Within the industry track, PhD students and postdocs conduct their research in collaboration with an academic institution and an industry partner. They are co-supervised by two advisors, one from each of the partners, and split their time conducting research and working between the two. Beyond the resources of the ELLIS network, industry track PhD and postdocs benefit from practical, first-hand experience working with industry while completing their appointment.

For this track, both advisors may be located in the same country. One advisor will represent the academic institution and the other the industry partner. Both the academic and industry advisor must be ELLIS members and at least one of them a fellow, scholar or unit faculty.

# **BOTH TRACKS**

**FOCUS** 

Emphasis on research excellence and publishing

**ADVISORS** 

Co-supervision by 1 ELLIS fellow/scholar/unit faculty + 1 fellow/scholar/member<sup>1</sup>

SELECTION

Selection procedure defined and overseen by the ELLIS PhD & Postdoc Committee Quality control by the co-supervising parties

**PROGRAM** 

Both tracks grant full benefits of the program

**FUNDING** 

A minimum amount of funding must be provided through the advisors' resources: 3 years overall for a PhD student, and 2 years overall for a postdoc.<sup>2</sup>

**APPLICATION** 

Via (1) centralized recruiting (deadline 1x year in fall, PhDs only) or (2) decentralized continuous recruiting: nomination (possible year-round)

#### Notes

- 1. Co-supervision by two ELLIS members (who are not fellows/scholars) is not possible, unless one of the members belongs to the **unit faculty**. This entails that: (i) the person is an ELLIS member and belongs to an ELLIS unit; (ii) the person is entitled to supervise PhD students at the respective institution; (iii) the person is appointed by a Unit Director to participate in the central recruiting/nomination process. See ellis.eu/units.
- ELLIS itself does not provide funding except for smaller travel grants via the Mobility Program for PhDs and Postdocs.

# **ACADEMIC TRACK**

# **INDUSTRY TRACK**

**PARTNERS** 

2 European<sup>1</sup> academic institutions (e.g. universities)

1 European academic institution + 1 European industry player

**LOCATION** 

partners must be located in different countries in Europe<sup>1</sup>

partners<sup>2</sup> can be located in the same country/city, but must be based in Europe

**EXCHANGE** 

min. 6 months at the secondary institution (can be split up in multiple visits)

time split between academia (min. 50%) and industry (min. 6 months, cumulative)<sup>3</sup>

#### Notes

- 1. Exception: The exchange institution can be outside of Europe, but only if the exchange host (secondary advisor) is an ELLIS fellow/scholar. This exception only holds for the academic track.
- 2. The industry partner, industrial research lab, and industry advisor must all be based in Europe (regardless of HQ location), but can otherwise be in the same country/city as the academic partner.
- 3. In case there already is an extensive collaboration between an industry and academic partner at one site, e.g. a jointly funded and run industrial-academic lab, slightly different regulations may apply (for more info: phd-industry@ellis.eu).

# 02 APPLICATION

# **JOINING ELLIS**

There are two main ways to join ELLIS as a junior researcher:

#### 1. Central application

Prospective PhD students apply through the central ELLIS application portal. ELLIS pools candidates across Europe, allowing students to apply to multiple potential advisors with a single application and find the best match.

#### 2. Nomination

PhD students or postdocs already working with an ELLIS fellow, scholar or unit faculty may be nominated by their advisors. Currently, postdocs are only recruited non-centrally through nomination.

#### RESEARCH TOPICS

The ELLIS network covers a wide range of machine learning-driven research areas. We are looking for talented students and postdocs who are passionate about research in these fields. Research areas include but are not limited to:

- Machine Learning Algorithms
- Machine Learning Theory
- Optimization
- Deep Learning
- Interactive and Online Learning
- Reinforcement Learning and Control
- Computer Vision
- Computer Graphics
- Robotics
- Human Computer Interaction
- Natural Language Processing
- Causality
- Interpretability and Fairness
- Robust and Trustworthy ML
- Quantum and Physics-based ML
- Symbolic Machine Learning
- Computational Neuroscience
- Earth and Climate Sciences
- Bioinformatics
- Health

# **REQUIREMENTS**

#### **ACADEMIC TRACK**

### **INDUSTRY TRACK**

**ADVISORS** 

1 ELLIS fellow/scholar/unit faculty + 1 ELLIS fellow/scholar/member

**CANDIDATE** 

There is a publication requirement for existing PhD students/postdocs who are **nominated**: at least 1 first-author publication in one of the top-tier venues in machine learning-driven fields. There is no publication requirement for new students applying via the central application portal.

**PARTNERS** 

2 European academic institutions that are located in different countries

1 European academic institution + 1 European industry player; may be located in the same country

**EXCHANGE** 

min. 6 months at the secondary institution (can be split up in multiple visits)

time split between academia (min. 50%) and industry (min. 6 months, cumulative)

**PUBLICATION** 

ELLIS PhD students and postdocs will publish the results of their research in top-tier venues in machine learning-driven fields.

All notes and exceptions listed on pp. 7-8 apply.

A central, online application portal is available for new students looking for PhD opportunities within the ELLIS network.

PhD students in both tracks are supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member and they visit the partner for min. 6 months. Please check all requirements and ellis.eu/faqs before applying.

Typically, around 100 advisors advertise open positions in the call each year. On our application portal, you can apply to all your favorite labs with a single application!

Admission to the program is competitive. In a typical round, less than 5% of all registered applicants, and between 5-10% of eligible applicants are accepted.

#### CENTRAL APPLICATION TO THE PHD PROGRAM

ELLIS offers a coordinated selection process for its pan-European PhD program. Students may apply through the central ELLIS application portal to become a PhD student within the ELLIS network (deadline once a year in fall). In their application, applicants choose from a set of ELLIS research areas and ELLIS fellows/scholars/unit faculty they would like to work with. Candidates will be centrally reviewed for **excellence** by a pool of experts; the best candidates will be shortlisted and may be invited for interviews by individual advisors. If an offer is made, the parties involved sign a Letter of Intent which specifies the main supervisor, the co-supervisor as well as plans for funding, exchange and graduation. ELLIS does not award degrees; the student must enroll at the degree-granting institution (typically the university the main supervisor is affiliated with). For questions about **eligibility**, please see ellis.eu/faqs.

#### ANNUAL CALL FOR APPLICATIONS

There is an annual application deadline in fall. Calls are announced on the ELLIS website. The next application deadline is **November 15, 2022**. Note that this process is for prospective **PhDs only** (there is no central application round for postdoc positions).

#### **MORE INFO**

Oct-Nov 15 applications

Nov - Dec reviews

Jan - mid-Feb interviews

late Feb - Mar decisions

A central, online application portal is available for new students looking for PhD opportunities within the ELLIS network.

PhD students in both tracks are supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member and they visit the partner for min. 6 months. Please check all requirements and ellis.eu/faqs before applying.

#### ADDITIONAL INFORMATION FOR APPLICANTS

As part of the application procedure, you will be able to indicate preferences for specific research areas and potential supervisors who are participating in this year's current recruiting round. A list of available advisors with open positions will be published on the application portal. Only advisors who participate in the current call (i.e. those that are listed on the portal in the "Advisor List") are eligible to recruit ELLIS PhDs.

The application consists of three parts:

- (1) **Application form**. In the application form, you provide your personal details, indicate your preferences for research fields and advisors and list relevant degrees and experience.
- (2) **Documents**. You will need to upload the following documents (as PDFs):
  - A two-page **motivational letter** in which you (1) explain why you want to earn a Ph.D. within the ELLIS network and (2) include a research statement describing past research projects and interests as well as the future direction of your research. (Optional: In addition to (1) and (2), you may also mention specific advisors you are interested in working with.)
  - Your current CV that details your educational background, work experience, full citations of any publications you may have, any research presentations you have given, and any awards you have received.
  - Unofficial transcripts of all of your university studies (BSc, MSc), as well as a translation into English.
  - Optionally, additional documents such as a thesis, published paper, or project portfolio, (or parts thereof) as a single PDF (<20 MB).

A central, online application portal is available for new students looking for PhD opportunities within the ELLIS network.

PhD students in both tracks are supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member and they visit the partner for min. 6 months. Please check all requirements and ellis.eu/faqs before applying.

#### ADDITIONAL INFORMATION FOR APPLICANTS

(3) References. You will also be asked to provide the contact details of min. 2 referees (max. 3) who have agreed to submit a reference. You should contact your referees personally before you send a formal request via the portal. Contacting your referees directly beforehand ensures that they are willing to write a strong recommendation and will have the time to do so before the specified deadline. Referees will receive the upload link via the application system once you click the button to "request your reference letter".

Choose your referees carefully and think about who is best qualified to write you a strong recommendation. Referees must be able to assess your academic performance and research abilities. At least two of the referees should be professionally established at the level of independent investigator, principal scientist, group leader, lecturer or above. A maximum of one reference may come from a postdoc. We recommend that you include the principal investigator who supervised your thesis work. Professional references are accepted, as long as the referee can comment on your academic/research abilities (e.g. referees from industrial research labs). References from PhD students or class mates are not accepted.

Only complete applications will be considered.

A central, online application portal is available for new students looking for PhD opportunities within the ELLIS network.

PhD students in both tracks are supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member and they visit the partner for min. 6 months. Please check all requirements and ellis.eu/faqs before applying.

#### ADDITIONAL INFORMATION FOR APPLICANTS

#### Advisor and time-sharing requirements

ELLIS PhDs are co-supervised by one ELLIS fellow/scholar/unit faculty and one ELLIS fellow/scholar/member, both based in Europe. During the centralized selection process, the main focus will be on finding a match with the primary advisor. Finding a co-advisor can be done simultaneously, or up to 5 months after acceptance to the program.

#### **Exchange and time-sharing**

- Academic Track: During their appointment, the PhD student must visit the secondary advisor in a different European country for min. 6 months (partitioning of the time is flexible).
- Industry Track: The candidate will spend a minimum of 50% of their time at the academic partner institution and a minimum of 6 months with the industry partner. This can be accumulative (e.g. 2 days per week) or consecutive. The industry partner, industrial research lab, and industry advisor must all be based in Europe (regardless of HQ location), but can otherwise be in the same country/city as the academic partner.
- The PhD degree must come from a **European institution**.

# 2. NOMINATION (CONTINUOUS RECRUITING)

The nomination process is available for junior researchers who are already working as a PhD or postdoc with an ELLIS fellow, scholar or unit faculty. Nomination is possible for both the academic and industry track.

Note that postdocs of either track are currently only recruited via nomination.

ELLIS fellows, scholars and unit faculty can nominate their current PhD students and postdocs to the ELLIS PhD & Postdoc Program by submitting the relevant form to phd@ellis.eu (download the form on ellis.eu/nomination-phd-postdoc).

#### NOMINATION PROCESS

ELLIS fellows, scholars and unit faculty may nominate PhD students or postdocs who are working with them to become ELLIS PhD students or postdocs by submitting the nomination form to **phd@ellis.eu** (academic track) or **phd-industry@ellis.eu** (industry track).

The PhD student/postdoc must have published at least one first-author paper in a top-tier venue in machine-learning driven fields: NeurIPS, ICML, ICLR, JMLR, CVPR, ICCV, ECCV, IJCV, PAMI, RSS, CoRL, ACL, EMNLP, KDD, AAAI, IJCAI, COLT, UAI, AAMAS, AISTATS, TACL, SIGIR, WSDM, or Web Conference (not including workshops). For details and other requirements, see ellis.eu/nomination-phd-postdoc. The relevant forms can be downloaded on this page.

The nomination process is as follows:

- 1. ELLIS fellows, scholars or unit faculty may nominate PhD students or postdocs who are working with them to become ELLIS PhD students or postdocs by submitting the nomination form (download at ellis.eu/nomination-phd-postdoc).
- 2. The nomination is reviewed. A decision can be expected within 2 weeks.
- 3. If the nomination is approved, the PhD student/postdoc is admitted to the ELLIS PhD and Postdoc program, and will be listed on the website (ellis.eu/phd-postdoc). Optionally, they can send a profile picture to phd@ellis.eu to be included on the PhD and postdoc page.

# O3 GOOD TO KNOW

Questions may be directed to phd@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### CENTRAL APPLICATION

#### Do I need to be a European citizen to apply?

No, ELLIS welcomes applications from all qualified candidates regardless of nationality.

#### I haven't finished my BSc/MSc degree yet. Can I apply?

Final-year students can apply.

#### Can I apply if I don't have a MSc degree?

Rules in Europe vary. Some participating universities require a MSc, others accept BSc students as well (sometimes under specific conditions). You will find this information in the portal if you click on the list of this year's recruiting advisors.

#### Will I get an ELLIS degree?

ELLIS is a non-profit organisation that cannot award official degrees. The ELLIS PhD & Postdoc Program is a meta program on top of existing graduate programs. The student will enrol as a student or be employed at a degree-granting institution (typically the university your main supervisor is affiliated to) and must comply with all the regulations and fulfil all the requirements of the host institution.

Questions may be directed to phd@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### CENTRAL APPLICATION

I'm already working as a PhD student with an ELLIS fellow/scholar/unit faculty and want to become an ELLIS student. Can I apply to the program through the central recruiting process?

The central recruiting is the primary event for ELLIS faculty to recruit *new* students. Excellent students who are already doing a PhD with an advisor in the ELLIS network and would like to join the ELLIS program should first consider the light-weight application process via Nomination that is set up for students recruited locally, and is possible year-round (see ellis.eu/phd-postdoc, "How to join ELLIS as a PhD or postdoc", option "2. Nomination" for the requirements).

If requirements for nomination are not fulfilled yet, these students may apply to the ELLIS program via the central recruiting if: (a) they are still \*within the first 6 months of their doctoral studies\* (i.e. students who started on May 15 or later can apply in the next round with application deadline November 15) and (b) their primary advisor is participating in that year's central recruiting round. If they are no longer within the first 6 months or if the advisor is not listed as a recruiting advisor that year, ELLIS only accepts nominations.

Questions may be directed to phd@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### CENTRAL APPLICATION

The ELLIS fellow/scholar/unit faculty I want to work with is not in the list of PhD Advisors in the application portal.

A list of available advisors with open positions will be published on the application portal. Only advisors who participate in the current call (i.e. those that are listed on the portal in the "Advisor List") are eligible to recruit ELLIS PhDs. Only Fellows/Scholars/Unit Faculty who are recruiting in this year's round are listed.

If I get an offer from an advisor within ELLIS, how exactly will my PhD be funded?

ELLIS does not employ or fund PhD students (except for providing smaller travel grants). If you get an offer, you will be funded through your advisors' resources. After accepting the offer, the student and the two advisors will sign a Letter of Intent which specifies the funding plan (among other things). The ELLIS Team cannot give you any details about the amount of funding beforehand because it may differ from country to country and from advisor to advisor. You can ask for more details during the interview. Only ELLIS fellows/scholars/unit faculty who have open positions are listed in the application portal.

Questions may be directed to phd@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### CENTRAL APPLICATION

#### Do I need to apply to the university that the main advisor is affiliated to?

It depends on what the rules of the host institution are. In brief: ELLIS offers an EU-wide central application portal and coordinates the matching process, but the official hiring process is local, governed by the institution of your main advisor.

If you want to apply for a PhD as part of the ELLIS PhD Program, you would typically first apply through the ELLIS portal (but see below for important exceptions).

Each year, ELLIS Fellows, Scholars and Unit Faculty may sign up to recruit new PhD students through the centralized recruiting of the ELLIS PhD program. Students may select preferences for various advisors from the list of recruiting ELLIS advisors. The best students will be eligible for the ELLIS program and may be invited for interviews by individual advisors. If the student gets an offer, the student and two supervisors will sign a letter of intent which specifies the plans for funding, graduation and the exchange. However, ELLIS does not provide funding (except for smaller travel grants) nor does it award degrees. The ELLIS PhD Program is a meta program on top of existing graduate programs. I.e., you will be funded through your advisors' resources and the degree will come from a university. This means that all the official paperwork goes through the institution of your main advisor and you have to comply with all their rules. Consequently, new students must be accepted to the degree granting university in addition to being accepted as an ELLIS student (i.e., the acceptance to the ELLIS PhD program is a conditional accept).

>> continued on the next page

Questions may be directed to phd@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### CENTRAL APPLICATION

Do I need to apply to the university that the main advisor is affiliated to? >> continued from the previous page

After you accept the offer to become an ELLIS PhD student, you should ask your advisor which steps you have to take to become a student/an employee at the degree-granting institution (e.g. submitting documents, applying to the local doctoral school, etc.). Rules may vary depending on the institution.

\*IMPORTANT\* Some universities (e.g. University of Oxford) do not accept graduate students throughout the year, but have strict deadlines for applying to their graduate programs, which may be earlier than the ELLIS deadline. In this case, you should not wait until the ELLIS selection procedure has ended, but apply in parallel if you don't want to wait for the next deadline to enroll as a PhD should you get an ELLIS offer. If unsure, visit the website of the university or contact your preferred advisor. It's safest to apply to both programs in parallel to avoid any delays in the starting date of your contract. Advisors will also be able to indicate in the portal if a parallel application is required.

Questions may be directed to phd-industry@ellis.eu. Please read this documentation and the information on the website (ellis.eu/faqs) carefully before sending an email.

#### INDUSTRY TRACK

I am an ELLIS fellow and would like to nominate a PhD or postdoc for the industry track, but do not currently have an active collaboration with industry. Will ELLIS arrange this?

No. Currently, the ELLIS industry track is only able to consider active collaborations and cannot begin or arrange such collaborations.

I am part of an existing collaboration between industry and academia. Can our current PhD students and postdocs apply to the ELLIS industrial track?

Yes! This is the ideal way to begin an ELLIS industry track PhD or postdoc. In order to accommodate the practices and regulations of various participating organizations across different European countries, there are only a few requirements that must be met before nomination (see requirements slide 02). Beyond this criteria, the exact details of each arrangement are left open and flexible for the partner organizations to determine along with the candidate. See the Application section for details on nominating candidates.

I am part of an existing collaboration between industry and academia, but we do not currently have PhD students or postdocs, although we would like to. Does ELLIS support in setting up these arrangements?

Because of the diversity in ways of working, requirements and regulations among academic institutions, companies, and between European countries, ELLIS cannot individually assist in setting up partnerships and collaborations that support PhD students or postdocs. However, it can recommend best practices and ways of working that help to serve the various needs of the collaborators. If you have questions about general setup or best practices, you can send an email to phd-industry@ellis.eu.

# 04 CONTACT

# PHD & POSTDOC COMMITTEE & COORDINATION

#### **PhD & Postdoc Committee**

Nicolò Cesa-Bianchi Università degli Studi di Milano

Andreas Geiger (Committee Chair) University of Tübingen & Max Planck Institute for Intelligent Systems

Christoph H. Lampert IST Austria

Bernhard Schölkopf Max Planck Institute for Intelligent Systems

Josef Sivic Czech Technical University, École Normale Supérieure & INRIA

Lenka Zdeborová FPFI

#### Coordination

Lynn Anthonissen Scientific Coordinator

Katerina Makrogamvraki Industry Coordinator

Daniel Selinger Web Developer

#### **EMAIL**

ELLIS PhD & Postdoc Program: phd@ellis.eu Academic track: phd@ellis.eu Industry track: phd-industry@ellis.eu

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