

BOOTCAMP 2025

IoT & AI FOR BLACK SWAN EVENTS

Anticipating and managing
the unpredictable

One Health | Medicine | Agritech |
Climate Action



7TH Edition

25 AUGUST - 12 SEPTEMBER 2025

Jesus College Cambridge (UK)

WHAT IS THE BOOTCAMP?

An intensive 3-week programme of **lectures, labs and project work** to acquire technical skills and soft skills based on **industry use cases**. Tutoring and teamwork are essential parts of this team learning journey.

WHERE IS THE BOOTCAMP?

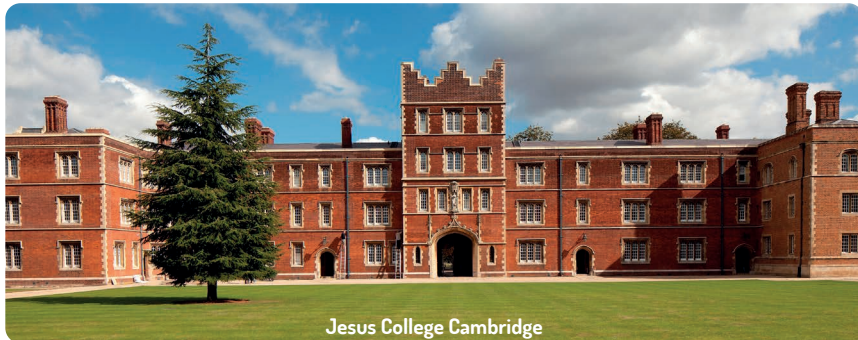
The Bootcamp is a **full-immersion experience** held at **Jesus College at the University of Cambridge**. This prestigious location allows participants to be in the centre of Cambridge close to all amenities.

WHAT ARE THE LEARNING OUTCOMES?

By the end of the Bootcamp, participants will be able to:

- Apply the main tools and methods of IoT and AI to real industry use cases
- Work in a diverse group of people to ideate, develop and present a solution to industry partners
- Improve and use their soft-skills in terms of team work, presentation skills and effective communication

A full-immersion experience learning by doing together.



Jesus College Cambridge

Bootcamp
Scientific
Director

Prof. Leandro
Pecchia

PROGRAMME

Designed in collaboration with **academics and professionals**, this is a short and effective **3 week course** based on **experiential learning and practical activities**. Click [here](#) for the full program.

WEEK 1

Artificial Intelligence Fundamentals

WEEK 2

IoT Fundamentals and Enabling Technologies

WEEK 3

Hackathon

The 120 hour programme includes:

Tech Lectures (IoT & AI)

Tech Labs with tutors

Team Project Work

Transferable Skills Training

Business Lectures

AI and Ethics



Academic Tutors

Guide all the labs after each lecture
to ensure participants' learning



Industry Tutors

Help the teams with their work to ensure
the successful completion of projects



Transferable Skills Training

Communication and presentation skills, project
management, leadership and teamworking skills;



Business Studies

Benchmarking and Business Modelling.

ENTRY REQUIREMENTS

The Bootcamp is designed for **students, researchers and professionals** who want to have a **multi-disciplinary experience** and **want to acquire IoT and AI skills** in close contact with industry partners.

To enroll in the Bootcamp, we strongly recommend that participants have:

- B2 level or higher of English
- basic computing skills and familiarity with at least one programming language.

Please refer to the [Registration Guidelines on Bootcamp 2025](#) for the application procedure.

INDUSTRY USE CASES

We believe in **project-based learning**. The programme is entirely built on use cases provided by our industry partners.



AI and IoT for Hospital Blackout Management in Limited Resource Settings

During a blackout, the management of technical equipment and staff becomes critical in hospitals. Especially in limited resource settings, such an extreme event demands a rapid, intelligent, and coordinated response to safeguard human life, while avoiding cascading effects on patients, staff, and healthcare infrastructure.

The challenge: design intelligent systems based on AI and IoT capable of early detection of energy-related risk signals, real-time optimization of remaining resources, ensuring localized monitoring and intervention, and/or maintaining communication and coordination between departments even in the absence of a central network.



Natural disasters management: early detection and emergency response systems on the edge

How can traditional disaster detection and response systems be changed to avoid delays and bottlenecks of cloud-reliant architectures? Explore the integration of edge computing, IoT sensors, and AI models for real-time detection and rapid response to natural disasters. This use case focuses on decentralized systems capable of low-latency data processing, predictive analytics, and automated emergency protocols-enhancing situational awareness and resilience in the face of black swan events like earthquakes, floods, and wildfires.



GenAI for One Health: Autonomous Early Warning of Emerging Pandemics

Global outbreak alert systems often struggle to detect emerging pandemics in a timely manner, particularly in regions with limited surveillance. This use case aims to explore GenAI-based solutions that autonomously identify early warning signals by interpreting complex, multilingual scientific literature and diverse data sources-such as wildlife patterns, satellite imagery, wastewater, and social signals-within a One Health approach. The goal is to generate explainable early warnings and insights to support timely, expert-driven responses.

Participants work in teams to find **innovative solutions to real problems.**



Optimising Agricultural Water Use: requirements determination and detection for sustainable resource management

Water supplies in the East of England and other regions are under extreme pressure, is building a large reservoir the only solution? How can the water requirements of agriculture and the food supply chain be measured and optimised; protecting food supply chains but releasing resources to other essential users, such as consumers, industry and the natural environment. The use case focuses on how remote sensing and other freely available data sets or IoT solutions might allow optimisation of use.



Enancing Rare-disease Patient Journey

The journey of patients affected by rare-disease is far from being optimal. Diagnostic delay are common due to luck of specialistic knowledge, especially in remote areas. This result in delay in choosing the appropriate therapy, with increased burden on family and healthcare services, and reduced quality of life. AI can help optimising the patient journey improving prevention, referral, diagnosis and also optimising care. The challenge: design intelligent systems capable of supporting clinicians, improving patients' and their family quality of life.

PITCH DAY

During the final **Pitch Day** on the 12th September each team will present their solution to a **Jury Panel** of industry experts. The team presentations will be followed by a formal **Gala Dinner** and the **Award Ceremony**.

COSTS	UCBM	Regular
Course only	€ 2.800,00	€ 3.800,00
All inclusive	€ 4.000,00	€ 5.000,00

SCHOLARSHIPS

For eligibility requirements and scholarship application procedure, please refer to the [Scholarship Guidelines on Bootcamp 2025](#).

We particularly welcome applications from international participants and women in STEM.

PARTNERS



ENDORSED BY





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