



HOMERTON COLLEGE
UNIVERSITY OF CAMBRIDGE

AI, LARGE LANGUAGE MODELS & THE FUTURE OF INTELLIGENT SYSTEMS

CAMBRIDGE | 2 WEEKS | 12-26 AUG 2026



PROGRAMME OVERVIEW

AI, Large Language Models, and the Future of Intelligent Systems

This intense 2-week residential programme at the University of Cambridge equips students to go from understanding how AI works to building with it, guided by academics at the forefront of the field.

From User to Builder

Most people interact with AI every day without understanding what is actually happening beneath the surface. This programme changes that. Over 10 days in Cambridge, students move from the fundamentals of how large language models work to hands-on work with retrieval-augmented generation, one of the most important and widely used techniques in applied AI today.

Sessions are discussion-led and technically grounded, taught by faculty with active research in AI and machine learning. By the end, every student will have built a working AI project and will leave with a certificate and the fluency to speak about these systems with genuine confidence.

STATS	INCLUDED	
14 — Days in Cambridge	Programme tuition	Official College Class Photo
3 — Core Topics: AI, LLMs, RAG	Course materials	Programme Certificate from Homerton College, University of Cambridge
5-8 — Hands-on Projects per Student	Accommodation	Branded Backpack
£4500 — Price	Meal plan, including Afternoon Tea and Formal College Dinner	Excursions



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WHAT STUDENTS GAIN

Certificate from Homerton College, University of Cambridge

Receive a Certificate of Completion recognising your successful participation in an intensive academic programme.

A Functional AI Application

Design, develop, and present a working AI application, applying modern techniques including prompt engineering, LLM integration, and Retrieval-Augmented Generation (RAG).

Practical AI Skills

Develop a strong understanding of how modern AI systems work through hands-on projects, workshops, and real-world problem solving.

Cambridge Student Experience

Live and study at **Homerton College, University of Cambridge**, experiencing Cambridge-style teaching, College traditions, and an international learning community.



**PRACTICAL SKILLS.
REAL EXPERIENCE.
RECOGNISED
ACHIEVEMENT.**



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Certificate of Completion

This is to certify that

Student's Name

Has completed the
**AI, Large Language Models &
the Future of Intelligent Systems
Programme**

Date of Completion
24th August 2024

Lord Woolley of Woodford
Principal of Homerton College
University of Cambridge



The Certificate of Completion from Homerton College, University of Cambridge formally recognises participants' successful completion of an official College programme and their commitment to academic and professional development.

Founded in 1209, the University of Cambridge is one of the world's oldest and most prestigious universities, internationally recognised for excellence in teaching, research, and innovation.

ADMISSIONS

Admission to the August AI Programme is competitive.

We are expecting to accept 8-10% of applicants, selecting students who demonstrate genuine intellectual curiosity, academic strength, and the motivation to engage seriously with technically demanding material. Prior experience in AI or computer science is not required. What we look for is evidence that a student is ready to be challenged and will contribute meaningfully to the cohort.

To apply, students must submit the following:

Academic transcript:

A current transcript from your high school or university showing your most recent academic record.

Essay response:

A written response to the following question, in 200-350 words: "AI systems are increasingly making decisions that affect people's lives, from university admissions to medical diagnoses to criminal sentencing. Choose one domain where AI is already being used to make high-stakes decisions. What are the risks of getting this wrong, and what would responsible deployment look like in that context?"

We are not looking for a technically perfect answer. We are looking for comfort with complexity, logical thinking and an ability to reason academically.

Applications are reviewed on a rolling basis.

For more information or to book the course, please contact:

hip@homerton.cam.ac.uk



A SELECTIVE PROGRAMME FOR EXCEPTIONAL STUDENTS



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CAMBRIDGE EXPERIENCE

YOUR TIME IN THE HEART OF BRITISH ACADEMIA

This is not a virtual programme. Students live and learn in Cambridge, one of the world's great university cities, and experience firsthand what it means to think and work at this level.

Beyond the classroom, students take part in the full Cambridge experience:

- Guided Tours of the Colleges
- Punting on the River Cam
- Formal College Dinner
- Traditional Afternoon Tea
- Excursion to London and Oxford
- Shopping and more

The academic intensity of the programme is matched by the richness of what surrounds it.



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STEP INTO THE SHOES OF A CAMBRIDGE STUDENT



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HOMERTON
INTERNATIONAL
PROGRAMME

Official College Programme
at the University of Cambridge

THREE TOPICS. TWO WEEKS. REAL DEPTH.

The programme is structured around three interconnected areas, each building on the last. Students do not just attend lectures. They work through problems, discuss real applications, and apply what they learn to their own project.

Topic 1 · Foundations of AI and Machine Learning

Understanding the systems behind modern AI

How machine learning works, what neural networks actually do, and how AI systems are trained and evaluated. Students build a working mental model of the field before touching the tools, so that everything that follows makes sense from the ground up.

Topic 2 · Large Language Models

How LLMs are built, trained, and deployed

What makes a large language model different from earlier AI systems, how transformer architecture works, what prompting and fine-tuning mean in practice, and where current models succeed and fall short. Students engage with real models and learn to evaluate their outputs critically rather than take them at face value.

Topic 3 · Retrieval-Augmented Generation

The technique powering the most useful AI applications today

What RAG is, why it matters, and how it solves one of the core limitations of language models on their own. Students learn how retrieval systems are designed, how they connect to generative models, and how to build a basic RAG pipeline from scratch as part of their final project.



PROF. VIANNEY GOMEZGIL YASPIK

Prof. Dr. Vianney Gomezgil Yaspik is an AI, data science and economics researcher at the Bennett School of Public Policy at the University of Cambridge. She completed her PhD in the Politics and International Studies department at the University of Cambridge.

She also holds degrees in Mathematics, Computer Science, and Economics from Bowdoin College and Johns Hopkins University. Her research spans digital inclusion, data science applied to public economics, and digital currencies with a particular focus on the integration of AI into the data science discipline. She has advised the IMF, IFC and JP Morgan.

ACADEMIC TEAM



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YOUR PROJECT

Build Something Real

Our approach is interactive, collaborative, and project-driven, combining thought-provoking lectures, workshops, group discussions, and hands-on project work.

Every student completes 5-8 hands-on projects over the course of the programme. Working individually or in small teams, students design and build a functional application using the tools and techniques covered in the sessions, from prompt engineering and LLM integration to a working RAG pipeline.

Projects are presented to the cohort and faculty on the final day. Students leave with a working prototype, documented code, and a University of Cambridge affiliated certificate that reflects the technical depth of the programme.



BUILD SOMETHING REAL



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BUILT FOR AMBITIOUS STUDENTS AT ANY LEVEL

The programme is designed for high school and university students who are curious about AI and want to understand it beyond the headlines.

No prior experience in machine learning is required. Students need only bring intellectual curiosity and a willingness to engage seriously with technical ideas.

This programme is a strong fit for students who are considering degrees or careers in computer science, data science, policy, business, or any field where AI is reshaping the landscape.

WHO THIS
PROGRAMME
IS FOR



HOMERTON COLLEGE
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BE INSPIRED.
BE CAMBRIDGE.



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Apply for the August Cohort

Admission is selective, with an expected 8-10% acceptance rate. Places are limited and reviewed on a rolling basis. Submit your transcript and essay to begin your application.

2 WEEKS | £4500

APPLY NOW!

**For more information or to
book the course, please
contact:**

hip@homerton.cam.ac.uk