



UNIVERSITY OF
CAMBRIDGE

Cambridge Centre for the Integration
of Science, Technology and Culture

Cambridge Centre for the Integration of Science, Technology and Culture

The Gateway to Research Excellence

Summer Research Programme 2023

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Welcome Message

from *Founding Director*



Prof. Nicola Clayton FRS

- Founding Director, CCISTC
- Fellow of The Royal Society
- Fellow of The Royal Society of Biology
- Fellow of American Psychological Society
- Professor of Comparative Cognition, University of Cambridge
- Fellow, Clare College, University of Cambridge
- Chartered Psychologist of The British Psychological Society

As the Founding Director of University of Cambridge - Cambridge Centre for the Integration of Science, Technology and Culture (CCISTC) and on behalf of the Founding Co-Directors Professor Clive Wilkins (MMC) and Dr. Michael Zhou (Cantab), it gives me the great pleasure to welcome you all to collaborate with CCISTC.

Since its establishment, CCISTC's vision and emphasis are on collaboration, development and understanding across disciplines and cultures. We firmly believe in the concept of one world, where each and every one of us is not only dependent on, but also inspired by, the skills and ideas of those around us. All of us work better together when able to listen carefully and respond to the needs of others. The sharing of ideas and awareness of the needs of the world around us in its broadest sense is imperative. We aim to develop the necessary skills to implement our next new future.

We have worked towards our visions by collaborating with partner higher education institutions, funding bodies, and scholars through pioneering research, and by empowering their students, scholars and professionals with various training and exchange programmes we develop together with our partners. We also work with policymakers, professional societies and associations to provide advice and guidance on formulating policies and standards by contributing to advisory panels, committees, workshops, etc.

I hope you find the work we do exciting and are inspired to share our visions and work together with us!

Prof. Nicola Clayton, FRS
Founding Director, CCISTC



About Us

CCISTC



The Cambridge Centre for the Integration of Science, Technology and Culture (CCISTC) is an interdisciplinary centre within the University of Cambridge. We work on interdisciplinary research projects, organise relevant conferences, seminars and programmes to empower people. CCISTC also aims to promote discussions and collaborations among academics, students, and our international partners (such as policy makers, education institutions, societies, associations, etc.) across the world.

CCISTC provides a stimulating platform for the following areas:

- Research collaborations with other higher education institutions and funding bodies in the field of natural and artificial intelligence, cognition, sciences, technology and arts.
- Working with policy makers, professional societies and associations to provide advice and guidance on formulating policies and standards.
- Together with partners, organising summer programmes, competitions, visiting scholar programme, online research training programmes, and various international exchange programmes, conferences and seminars for inspiring and exchanging innovative ideas.
- Creating a global network of education institutions and professional bodies to facilitate knowledge exchange.

Directors



Prof. Nicola Clayton, FRS

- Founding Director, CCISTC, University of Cambridge



Prof. Clive Wilkins

- Founding Co-Director, CCISTC, University of Cambridge



Dr. Michael Zhou, PhD (Cantab)

- Founding Co-Director and Executive Director, CCISTC, University of Cambridge

Summer Research Programme 2023

Overview



"The number of scientific researchers is declining globally, which will cause tremendous issues for the scientific community and human beings in long term. The CCISTC Summer Research and Online Research Training Programmes are designed to offer research training to those who normally don't have the access to research opportunities. We hope it would nurture the younger generations' interests in science and prepare them with relevant research skills in the chosen subject." -Prof. Nicola Clayton, FRS

Introduction

CCISTC partners with Maxer Education Institute to develop and deliver the Summer Research Programmes 2023. Our Summer Research Programmes create a platform for like-minded and aspiring research students to explore their potential in a certain industry and share ideas with peers from around the world. Our programmes also provide students with immersed cultural activities as well as the opportunity to visit leading companies and research institutions.

Research Training

- The key element of the 2-week subject-based research programme is research training.
- The students will be guided by a faculty member and supervisor from the University of Cambridge in a chosen subject and exposed to the knowledge, latest innovation and research in this field.
- Students will have the opportunity to cultivate their interests in this subject and develop research skills, through the interactive lectures/activities offered by the Cambridge Professor, and the small group supervision by the Cambridge PhD research supervisor.
- The students will work as small groups on various research projects and deliver a research talk/presentation at the CCISTC Summer Academic Conference.
- The best projects will be invited to submit a research paper and included in the Conference Proceeding subject for further review.

Summer Research Programme 2023

Programme Information



Programme Date

16th July - 29th July 2023

29th July - 11th August 2023



ONLINE APPLICATION



This programme is suitable for

- ① High School, Undergraduate and Postgraduate students who want to gain insight and develop relevant research skills in the subjects they are interested in
- ② English language level B1 and above/ English is the language of instruction at home school or university
- ③ Age 16 and above

Accommodation

Single/Twin Standard Room in a Cambridge University College - [See here](#)

Tuition Fee

£ 5,800 per student

Application Process

We review applications on a rolling-basis

What is included

- 13 nights of College accommodation.
- Breakfast and dinners, including a Cambridge College Traditional Formal Dinner when the graduation ceremony takes place.
- All academic schedule, including Research Lectures, Supervisions, Practicals/Workshops/Seminars, CCISTC TedTalks with world-class speakers, an Organisation Visit, Presentation at the CCISTC Summer Academic Conference, and the teaching venues.
- Inspirational social and cultural schedule as detailed in the sample schedule, including excursions to London and Oxford.
- Transport: airport pick up and drop off shuttle coach, London and Oxford day trip coach.
- A UK sim card with prepaid allowance for data, calls and texts.
- Programme awards

Summer Research Programme 2023

Highlights and Awards



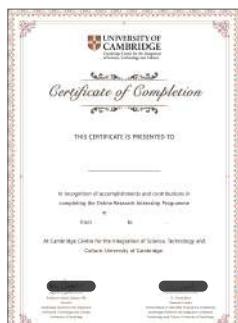
Awards upon satisfactory completion of the programme

Students who successfully finish the programmes will be granted the following documents to verify their achievements:

- ① An Official Certificate of Completion issued by CCISTC University of Cambridge
- ② An Official Programme Transcript / Report Issued by CCISTC University of Cambridge
- ③ A Recommendation Letter from CCISTC University of Cambridge*
- ④ The best group of students at the CCISTC Summer Academic Conference/ Top 20% of individual students will be awarded a Recommendation Letter from the Research Leader*

* subject to students' performance meeting the required standards

Programme Awards Samples



Certificate of Completion



Transcript/Report



Recommendation Letter



Recommendation Letter
(from the Research Leader)

Summer Research Programme 2023

Sample Schedule

Date	Morning	Afternoon	Evening
SUN		Arrival and check in (dinner provided)	
MON	Programme induction Group icebreaking	Colleges tour and city tour Punting	Icebreaker games
TUE	Research lecture/ session	Practical/ Workshop/ Seminar Group supervision Visit Wimpole Estate	Salsa dance
WED	Research lecture/ session	Practical/ Workshop/ Seminar CCISTC TedTalk Independent study	Free time
THU	London day trip and Musical	Practical/ Workshop/ Seminar	
FRI	Research lecture/ session	Group supervision Tour of Museums	Film night
SAT	Research lecture/ session	Practical/ Workshop/ Seminar CCISTC TedTalk Independent study	Free time
SUN	Oxford day trip		
MON	Free Day		
TUE	Research lecture/ session	Practical/ Workshop/ Seminar CCISTC TedTalk Golf experience	Sunset at Castle Hill
WED	Research lecture/ session	Practical/ Workshop/ Seminar Group supervision Independent study	Talent show
THU	Research lecture/ session or Organisation visit	Group supervision Grantchester afternoon tea	Free time
FRI	Presentation at the CCSITC Summer Academic Conference	Free time	Formal dinner and graduation ceremony
SAT	Check out	Departure	

Available Subjects

With Research Leaders and Dates



Subject	Research Leader	Available Dates
Artificial Intelligence and Computer Science	Prof. Pietro Lio'	16th July - 29th July 2023 29th July - 11th Aug 2023
Business	Prof. Matthew Grimes	16th July - 29th July 2023
Education	Prof. Geoff Hayward Prof. Colleen McLaughlin	16th July - 29th July 2023
Engineering	Prof. Andy Woods, FRS	29th July - 11th Aug 2023
Finance and Economics	Dr. Matthias Dörrzapf	16th July - 29th July 2023 29th July - 11th Aug 2023
International Relations and Governance	Dr. Catherine MacKenzie	16th July - 29th July 2023 29th July - 11th Aug 2023
Medicine and Health Care	Prof. Thomas Krieg	16th July - 29th July 2023 29th July - 11th Aug 2023
Nanoengineering / Materials Science	Prof. Jason Robinson	16th July - 29th July 2023
Psychology	Prof. Nicola Clayton	16th July - 29th July 2023 29th July - 11th Aug 2023
Sociology	Prof. Patrick Baert	16th July - 29th July 2023 29th July - 11th Aug 2023

Learn more about our Faculty
[\(Pages 12-15\)](#)

FACULTY INFORMATION

ONLINE APPLICATION



Programme Highlights



CCISTC TedTalk

We invite a number of world-class scholars and academics from various disciplines to give seminars on their specialities to promote academic interests in these areas among the students. The speakers include world-famous researchers, policymakers, industrial leaders, societies, associations, professional bodies and individuals.



Research-based Lectures

Academic excellence is at the heart of the CCISTC Summer Research Programmes. The programme provides the students with a wide range of subjects and lectures to choose from to prepare for their future research studies/careers.



Small Group Supervisions

Small group supervision is an unique feature of the Cambridge education system. They can provide you with the opportunity to explore your subjects more deeply by discussing your work process with and receiving regular feedback from your supervisors, including feedback on the preparation for your final presentation at the end of the programme.



Organisation / Company Visit

We organise unique subject-relevant / interdisciplinary industry visits to stimulate students' academic / career interests. The organisations may include sites like The Supreme Court, Royal Court of Justice, Cambridge Science Park, BP Institute, renown law firms, Professors' labs and offices at Cambridge, just to name a few.

Programme Highlights



Cambridge College Life

Cambridge Colleges will form key communities for your study here, offering a wide range of academic support, accommodation, and facilities for study and leisure. You will be welcomed into an inclusive, interdisciplinary, supportive, and social community.



Cultural & Social Activities

You will be free to explore the city of history for yourself, as well as meet new friends for the future. We will also organise a variety of cultural and social activities and day trips to help bring your learning to life.



Day trips to London & Oxford

We provide students with fully guided trips to London and Oxford. In this way, the students will have the opportunity to discover parts of the UK outside Cambridge. Each trip will offer inspiring cultural activities.

Faculty Information

Artificial Intelligence and Computer Science



Prof. Pietro Lio'

- Professor, Department of Computer Science and Technology, University of Cambridge
- Member of the Artificial Intelligence group, University of Cambridge
- Fellow, Clare Hall, University of Cambridge

Research Interests

- Machine Learning
- Text mining (transformers)
- Image and video analysis (transformers and GANs)
- Robotics and games (deep reinforcement learning)

Business



Prof. Matthew Grimes

- Professor of Entrepreneurship and Sustainable Futures, University of Cambridge
- Director of the MPhil in Innovation, Strategy & Organisation Programme, Judge Business School, University of Cambridge
- Co-Director of the Entrepreneurship Centre

Research Interests

- Social entrepreneurship around the world
- Identifying opportunities for social entrepreneurship
- Evaluating business models for social entrepreneurship
- Using design thinking for social change

Education



Prof. Geoff Hayward

- Professor of Education, University of Cambridge
- Head of Education Faculty, University of Cambridge

Research Interests

- Vocational education and training policy and practice
- Social disadvantage and education
- Transitions into Higher Education and the labour market
- Learning transfer

Faculty Information

Education



Prof. Colleen McLaughlin

- Emeritus Professor of Education, University of Cambridge
- Fellow, the Royal Society of Arts

Research Interests

- Educational reform and development
- Culture, politics and global justice
- Care in education, counselling, psychology and well-being
- Teacher action and practitioner research

Engineering



Prof. Andy Woods, FRS

- BP Professor and Head of BP Institute, University of Cambridge
- Fellow, The Royal Society
- Professorial Fellow, St. John's College, University of Cambridge

Research Interests

- Mathematical and physical modelling of different flow *Experimental and theoretical models of geological carbon storage
- Geothermal heat recovery from superheated systems
- Turbulent buoyant plumes and gravity currents in the ocean and atmosphere
- Air flows in buildings

Finance and Economics



Dr. Matthias Dörrzapf

- Director of Scholarships and International Programmes and Director of Studies, St John's College, University of Cambridge
- Fellow at St John's College, University of Cambridge
- Former Director of Research, Deutsche Bank (New York, Frankfurt)

Research Interests

- Utility and Risk Aversion
- Capital Asset Pricing Model
- Risk Neutral Pricing
- Binomial Tree Models

Faculty Information

International Relations and Governance



Dr. Catherine MacKenzie

- Director of Studies in Law, Clare Hall, University of Cambridge
- Director of Studies in Law and Land Economy, Homerton College, University of Cambridge
- Dean of Degrees of Green Templeton, University of Oxford
- Barrister and Governing Master of the Bench, The Honourable Society of the Inner Temple

Research Interests

- International Organisations, including United Nations, International Financial Organisations, International Maritime Organisations, International Environmental Organisations (FAO, UNEP, UNFCCC, treaty secretariats), International Refugee & Human Rights Organisations (UNHCR), Regional Organisations (EU, ASEAN, African Union), International Organisations and International Peace & Security
- Framework of International Law
- International Environmental Law
- International Trade Law
- International Commercial Law

Medicine and Health Care



Prof. Thomas Krieg

- Clinical Professor for Experimental Cardiovascular Medicine, University of Cambridge
- Honorary Consultant Physician, Cambridge University Hospitals NHS Foundation Trust

Research Interests

- Myocardial ischaemia
- Mitochondria
- Reperfusion injury

Faculty Information

Nanoengineering/ Materials Science



Prof. Jason Robinson

- Professor of Materials Physics , University of Cambridge
- Joint Head of Department of Materials Sciences and Metallurgy, University of Cambridge
- Fellow, St John's College, University of Cambridge

Research Interests

- Magnetism & electromagnetism
- Superconducting Spintronics
- Magnetic materials
- Nano materials and nano engineering

Psychology



Prof. Nicola Clayton, FRS

- Fellow, The Royal Society
- Fellow, The Royal Society of Biology
- Fellow, American Psychological Society
- Chartered Psychologist, The British Psychological Society
- Professor, Comparative Cognition, University of Cambridge
- Fellow, Clare College, University of Cambridge
- Founding Director, CCISTC, University of Cambridge

Research Interests

- Psychology and comparative cognition
- General principles of memory and mental time travel
- Cross-cultural studies of cognition
- Arts and Science Integration

Sociology



Prof. Patrick Baert

- Professor of Social Theory, University of Cambridge
- Fellow and Director of Studies, Selwyn College, University of Cambridge
- Fellow, the Royal Society of Arts

Research Interests

- Sociological Theories
- Class, inequalities, mobility
- Media and Culture
- Cultural sociology and the theory of cultural trauma



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