



# *Summer School*

*in Visual Computing and  
Artificial Intelligence*

A 4-week program in English

Topics:

Visual Computing,

Artificial Intelligence

Communication Skills

French as a Foreign Language

12 ECTS



**JUNE 20th - JULY 15th, 2022**

Cergy Campus, France

*Impacting tomorrow today*

<https://cytech.cyu.fr>

# CY Cergy Paris University

Since the first of January, 2020, Cergy-Pontoise University and EISTI have merged under a new name: CY Cergy Paris Université. It is composed of **24,000 students**. ESSEC is associated with CY as a partner institution. The academic course offerings are made up of an undergraduate university (CY SUP) and of five undergraduate and graduate schools, four within the university, with the fifth being ESSEC. **In addition to ESSEC, the other graduate schools led by CY university are :**

## • CY TECH

Specialized in Computer Science  
Applied Mathematics  
Civil Engineering  
Biotechnology & Chemistry  
Economics and Management

## • CY LAW AND POLITICAL SCIENCES

Represented by Sciences Po St-Germain-en-Laye campus

## • CY EDUCATION

Represented by INSPE, EPSS and ILEPS institutions

## • CY ARTS AND HUMANITIES

Represented by the National Higher School of Arts Paris-Cergy (ENSAPC)  
The National Higher School of Architecture of Versailles (ENSAV),  
The National Higher School of Landscape Design (ENSP)  
The National Heritage Institute (INP)

## CY Tech

Located in Greater Paris and in Pau, CY Tech is primarily an Engineering Graduate School. It has earned the “Grande Ecole” status, the highest recognition stated by the French Ministry of Higher Education & Research. CY Tech is also a member of the “Conférence des Grandes Ecoles” (CGE), a French association that gathers elite higher education institutions, which meet strict criteria regarding the recruitment process, educational approach, international and corporate network.

Accessible after the completion of a secondary education diploma or through a dedicated post-secondary preparatory class, it delivers a Master’s degree in these four fields:

- Applied Mathematics
- Computer Science
- Civil Engineering
- Biotechnology & Chemistry.

Two university departments have been incorporated into CY Tech: [the Institute of Sciences & Techniques \(IST\)](#) and [the Institute of Economics & Management \(IEG\)](#), which broadens our overall course delivery in these specific areas.

### CY TECH COURSE OFFER IS STRUCTURED IN THE FOLLOWING MANNER:

- A five-year Grande Ecole Engineering program
- Post-secondary preparatory classes leading to Grande Ecole program enrollment
- Undergraduate & Graduate Programs
- Continuous training programs: Specialized Postgraduate Master’s
- International Master’s with campuses located out of France
- PHD programs

# *Design YOUR life*

## Our mission Our values

The mission of CY Tech is to meet the rising expectations of both students and industry. Through innovative programs and faculty exchanges, we seek to provide our students with an ever-increasingly attractive educational experience. Students can choose undergraduate and graduate programs in both Engineering and Management disciplines. Students also acquire valuable knowledge and global managerial skills through internships and study abroad experiences with universities worldwide. Since CY Tech's inception, the institution has gradually adapted itself to the evolving economy that offers an extensive and diversified curriculum that meets a contemporary vision of today's world.

Its objectives are:

challenge-driven to prepare students and staff as global citizens and lifelong learners who care and act for the future of the planet and humanity  
committed to the principles of openness and inclusion, by building open resources and collaborative platforms, endorsing open science agendas, and sponsoring the access, mobility and inclusivity mechanisms that liberate our intellectual and social potential.





# CY Tech International Involvement

CY Tech's international involvement is indisputable and includes work experience abroad, academic exchanges as well as dual degree options.

## **Our institution recently renewed an Erasmus Charter for Higher Education.**

This recognition demonstrates our expertise in mobility of students & staff and in strong cooperation for innovation and good practices under the Erasmus + policy.

**CY Cergy Paris University is a member of Campus France**, the official agency for the promotion of French Higher Education worldwide. CY Tech has also aligned with different European and international organizations and associations (EUTOPIA, EAIE, NAFSA, n+i Network, AIEA, ...) which aim to promote progress of international education.

## **CY owns a Language Centre and is also an ETS TOEIC Authorized Test Centre.**

Our university was recently awarded the **"Bienvenue en France"** label, which distinguishes French Higher Education institutions that have developed reception facilities dedicated to international students. **CY is establishing solid links with Chinese universities** which will contribute to the creation of a Franco-Chinese Institute to further internationalize its educational opportunities. One of the most remarkable achievements at European level is the recent development of an alliance of six like-minded universities, located in Belgium, Slovenia, Spain, Sweden, the United Kingdom and France, entitled **EUTOPIA**.

The mission of EUTOPIA is to build in the long term a unique and daring alliance of transformative and engaged institutions. The alliance has developed strong ties within the regional communities, the institutional structures and the local companies. EUTOPIA students, researchers and staff work together to build a new academic model, reflecting an open and a united Europe, respectful of the citizens and the environment.

## **CY Tech diplomas require an official language certification in English as a Foreign Language**

as part of its national diploma recognition criteria. CY Tech will have signed 250 university partnerships worldwide within the two coming years, including more than 20 international dual degree options. A substantial number of cooperation programs allow the institution to enhance incoming mobility through its undergraduate, graduate and post-graduate English-taught course delivery. In keeping with CY Tech's global vision, our institution plans to open a campus in Singapore within the near future.

# What makes CY Tech Different?

## ONE AMBITIOUS VISION

CY, defined as a university of diversity, society-oriented and of international standing, seeks to educate new generations in the complex challenges of a globalized society in tune with the sustainable development objectives, academic excellence and quality student experience.

## A HIGH-PROFILE RANKING STATUS

National and international rankings, recognized by many specialized media and websites, show once again that CY course offerings are considered as one of the best in the fields of **Engineering, Management, Mathematics & Finance, internationalization and professional integration.**

## CUTTING-EDGE RESEARCH & TECHNOLOGY TRANSFER ACTIVITIES

Research and technology transfer are at the heart of the dynamics of CY Tech, whose missions contribute to the appropriation of scientific knowledge.



## “BIENVENUE EN FRANCE” LABEL

This national recognition, awarded by our university, enhances our expertise dedicated to international students, mainly in the following areas:

- Quality and accessibility of information & reception facilities
- Tutorial support services
- Housing facilities and campus life development
- Post-graduate career development and alumni services

CY Tech asserts its vision and pursues an active policy in technology transfer innovation of its research activities, conducted by recognized full-time researchers within its fourteen laboratories and five Open Labs in modeling and experimental sciences.

## A WIDE RANGE OF FACILITIES OFFERED AT THE CAMPUS

- Four libraries with over 2 million publications
- Four university residences and private housing facilities
- Student sports facilities with over 30 individual & team activities
- Four student restaurants, four cafeterias
- 47 student associations
- A full package of cultural activities including a “cultural Pass voucher”, a special pass which offers discounts to theaters & cinemas bookings and to other cultural events in Greater Paris

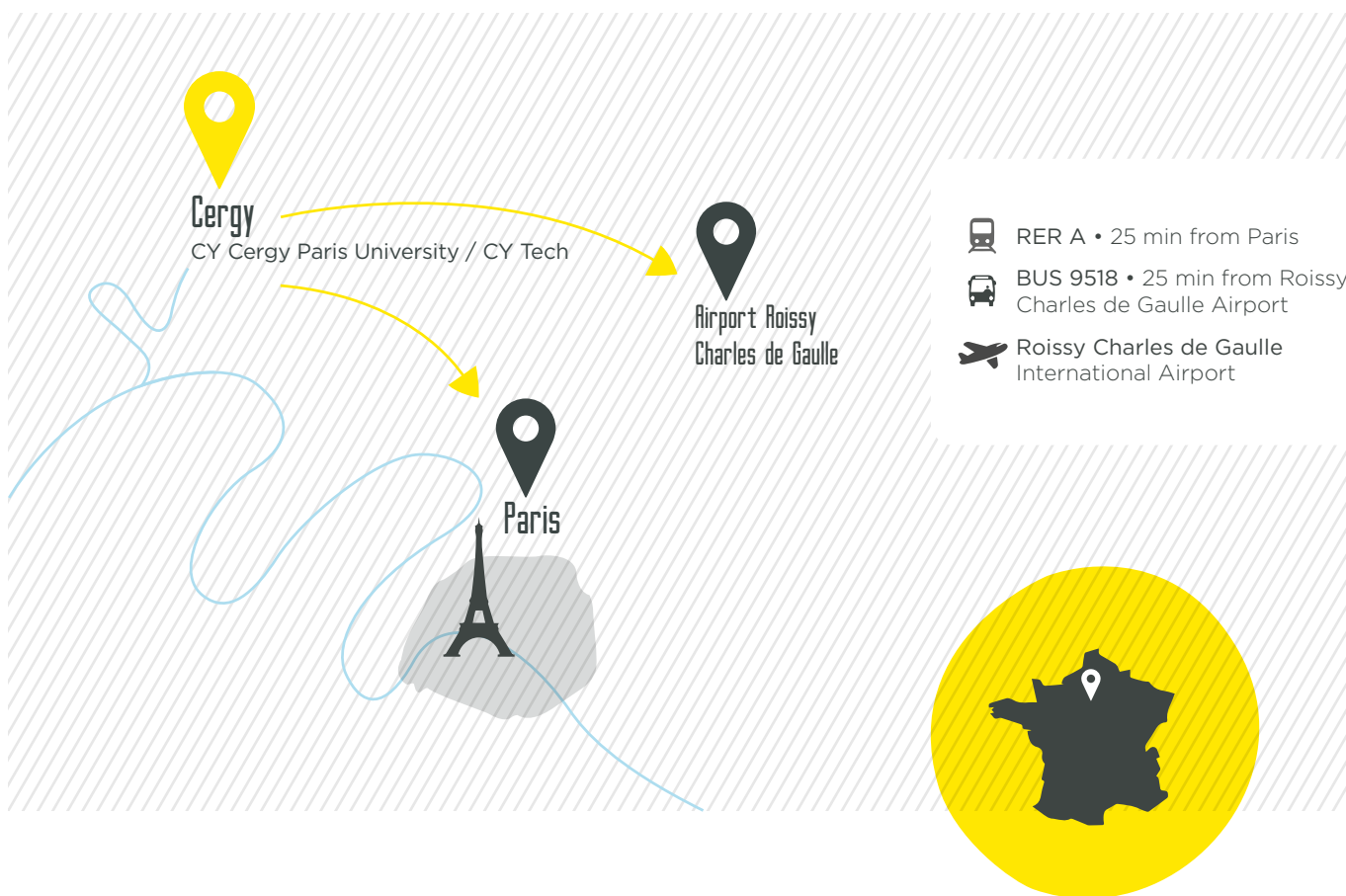






# Have you ever studied in Europe?

CY Tech provides you with an exceptional opportunity to combine both advanced academic learning and a memorable French cultural experience.



## CY Tech Campus, an exceptional geographical location in Greater Paris

The Paris Region has much to offer to international students, such as history, art, culture on top of its academic & scientific excellence. It is a unique place to learn, discover, study, engage and exchange, a place where dialogue, fraternity, freedom and creativity will always prevail.

Paris has been listed in the QS best student cities ranking for many years. At only 25 minutes from the world famous Les Champs Élysées, or La Défense (one of the major futuristic skyscraper- packed, business districts in Europe) stands the city of Cergy-Pontoise.

The historic heart of Cergy-Pontoise thrives on a prestigious past which has often found itself at the crossroads of the history of France itself, as when the Royal Court resided there. Its fame was extended through the long residency of Camille PISSARRO, who painted the varied landscapes of the town and its nearby countryside in numerous works, which are now to be found in the greatest museums in the world. Blessed with rich heritage, Cergy-Pontoise became on March 30th, 2006, a member of the national network of towns and lands of Art and History.

This label, delivered by the Ministry of Culture and Communication, embodies a policy aiming to promote heritage and architecture. Today, Cergy is known as a vibrant student hub.

# A memorable learning, social and cultural experience

## STUDY WITH PROFESSIONALS

Our Summer School aims at developing the students' academic knowledge and professional skills in 2 major topics related to Computer Science - Visual computing and Artificial intelligence. In addition, students will learn how to perfect the art of communication by numerous tips and exercises. You will be involved in various projects with the teaching staff and you will take courses in Visual Computing and Artificial Intelligence, which will provide you with the tools to create virtual reality, video games, virtual divides, interactive objects and to learn about optimizations methods and data mining. As an additional module, French as a Foreign Language will be included to help you socialize with the French population.

## A MEMORABLE SOCIAL AND CULTURAL EXPERIENCE

- Experience academic excellence through an interactive way of learning
- Meet French professionals for tailor-made conferences
- Take a deep dive into a specific career field with access to world-class faculty and industry professionals
- Build yourself a strong professional career
- Make friends from overseas at CY Tech
- Participate in cultural activities

## DISCOVER FRENCH CULTURE THROUGH « FUN » ACTIVITIES

- Make the most of Cergy-Pontoise, an exciting student hub
- Visit the world-famous famous monuments in vibrant Paris
- Take the tourist boat to visit Paris
- Stop off at the world-famous museums and discover their artistic masterpieces
- Enjoy cultural visits (the Eiffel Tower, the Champs-Élysées, ...) & company visits
- Explore Parisian Street Art
- Experience thematic Treasure Hunts and Escape Games







## ACCOMMODATION

You will be able to stay at the “Résidence Jean Baptiste La Salle” or at the «KLEY Cergy résidence», both located less than a 5-minute walk from CY Tech. Both residences provide internet access, lounge with cable TV, fitness area, secure entrance, launderette, bike parking. You will be accommodated in a fully furnished room. Town center, restaurants and shops are within easy walking distance from the residences. There are national festivals and music events at this time of the year. You can also decide to book accommodation in Paris on your own initiative.



# A four-week program in English: june 20<sup>th</sup> - july 15<sup>th</sup>

## Topic:

Visual Computing  
Artificial Intelligence &  
Communication skills  
French as a Foreign Language

Number of ECTS: 12

Number of US Credits: 6

Number of teaching &  
supervised project hours: 84 hours

## Course details

Lectures	84 hours - including face-to-face & supervised project in VC and AI
Visual Computing	21 hours (9 teaching hours + supervised project)
Artificial Intelligence	21 hours (9 teaching hours + supervised project)
Communication Skills	21 hours (7 three hours sessions)
French as a Foreign Language	21 hours (7 three hour sessions)

## Syllabus

### VISUAL COMPUTING (9 hours + supervised project)

- Mathematical and algorithmic fundamentals of 3D rendering (3 hours)
- OpenGL and the shader-based graphics pipeline (3 hours)
- Introduction to the software tools Blender and Unity (3 hours)

### ARTIFICIAL INTELLIGENCE (9 hours + supervised project)

- Theoretical concepts of Deep Learning (3 hours)
- Deep Learning for image processing (3 hours)
- Deep Learning for Natural language processing (3 hours)

### SUPERVISED PROJECT (24 hours)

In this project we will apply your new skills in both Visual Computing and Artificial Intelligence. You will use Deep Learning algorithms to detect elements in an image or video stream in order to interact with your own virtual 3D environment.

### COMMUNICATION SKILLS (21 hours)

- Know the basic principles of communication
- Know yourself better to communicate well
- Develop assertive behavior
- Listen to other people through non-verbal communication
- Speak with ease
- Sell your ideas
- Know how to manage delicate situations
- Choose the best communication channel

### FRENCH AS A FOREIGN LANGUAGE (21 hours)

In class, emphasis is placed on oral practice and interactive learning activities in a real-life approach to the language. It will include simple routine tasks, common polite phrases and exchange of information in order to encourage students to develop their communication skills in daily life situations.



# Objectives

**Visual Computing** is the generic term covering all computer science disciplines dealing with images, including computer graphics and computer vision, for important application domains such as digital prototyping, robotics or video games.

In this course, you will understand the basics of rendering a 3D scene, and learn how to create fully interactive 3D environments using popular professional tools.

**Artificial Intelligence** is a historical field of computer science that has been completely revolutionized by the emergence of deep learning in the last decade. Applications to image processing and natural language processing now offer very interesting and powerful tools. In this course, we will illustrate some examples of such applications, mixing theoretical and practical lessons.

## Communication Skills

At the end of the course, students will be able to:

- Adapt their communication to the profile of the person they are talking to develop assertive behavior in interpersonal relations
- Strengthen their ability to persuade others to give impact to their ideas
- Express themselves with ease in different types of intervention
- Get around blocking situations

## French as a Foreign Language

This course will enable students to start or improve their language skills in French. It is specifically designed to help them acquire language abilities and essential communicative skills according to their level.

# Admission requirements

## THIS PROGRAM IS OPEN TO:

- Undergraduate (18 years of age as a minimum criterion) and graduate Engineering students
- Native and non-native English speakers (proficiency level: IELTS 6.0 or equivalent)
- Applicants with relevant knowledge in Engineering-oriented subjects.

**TOEIC: 800**    **IBT TOEFL: 80**    **IELTS: 6.0**

French Proficiency: no prerequisite

French as a Foreign Language: Instruction included in CY Tech program

## APPLICATION PROCEDURES

Please contact us directly and submit your application and required documents on the following email address: [cytech.international@cyu.fr](mailto:cytech.international@cyu.fr), as early as possible, and at the latest on May 31st, 2022.

## APPLICATION FORM

Further information and the online application form are available at the following email address: [cytech.international@cyu.fr](mailto:cytech.international@cyu.fr)

## PROGRAM COST

Program cost: 2 400 €







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