The Young Computer Scientist Autumn Internship Live Online

Ages 15-18 | 17th - 21st October 2020 or 24th - 28th October 2020

The Young Computer Scientist Autumn Internship gives students aged 15-18 a 360-degree summer work experience in Computer Science, from the comfort of their own home. Over the course of 5 days, you will be working with top Software and AI Engineers, Cyber Security Analysts and Data Scientists, 'Live Online' via our interactive platform.

You will experience the real-life work of a Computer Scientist, with opportunities to build and programme an app, investigate cybercrime through data forensics, become a 'White Hat Hacker' and explore the capabilities of artificial intelligence and machine learning.

You will also have the opportunity to network with our Computer Scientists and ask them all your burning questions.

Join us for a truly unique experience that will serve as an outstanding differentiator on your university and job applications and set you up for a future as a successful Computer Scientist..

Internship Highlights:

Immersive Computer Scientist Experiences:

- Work with top Software Engineers to programme the ultimate app
- Carry out a data forensics investigation to uncover cybercriminal activity
- Carry out penetration testing on a 'secure' website (Ethical/White Hat Hacking)
- Explore the capabilities of artificial intelligence and the evolution of machine learning

Meet Senior Computer Scientists from Global Brands:

- Be coached through the immersive experiences with Software Engineers, AI Specialists, Data Scientists, Cyber Security Analysts and more
- Private virtual networking/panel sessions with these professionals, who can become vital connections for your future career

Comprehensive Career Coaching:

- Training on how you can get one of the most desirable jobs in computer science, starting now: A-level/IB, university and degree choices; extra-curricular activities; work experience; application and interview techniques
- Experience real-life recruitment methods used across industries to recruit computer scientists
- Personalised development plan: create a personalised development plan based on the advice you are given, which identifies your strengths and weaknesses and shows you which areas you need to develop further

Competitive Advantage In Your University Applications:

- Attending the internship demonstrates that you've gained key skills such as problem-solving, innovation and commercial awareness, which are highly-valued by top universities
- Complete the online assessment after the programme and receive a personalised certificate to include in your UCAS/College applications

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Timetable:

DAY 1: CYBERSECURITY

11.00am - **Enter the Internship**

- Today's fastest growing industry, computer scientists, are key players in global commerce
- How to make your mark in the industry defining the future
- The possibilities, demands and expectations

11.30am - **Inside the World of Cybersecurity**

- Our time is now: data as the most valuable asset in today's software-driven economy
- Navigating the world of cybercriminals: cyber threat as one of the most critical risks to business
- The latest trends in the threat landscape

12.00pm - **Your Data Footprint**

- Discover the longevity of your actions on the internet
- Clean up your data exhaust
- Beat the phishing scams and malware attacks: understanding the tools of deception used to manipulate you into divulging confidential or personal information

1.00pm - **Data Forensics**

- Carry out your own data forensics investigation to uncover cyber-criminal activity
- Work alongside leading cybersecurity analysts to acquire, examine and analyse digital evidence

1.30pm **- Lunch Break**

2.00pm - **You Become the 'White Hat' Hacker**

- Ethical hacking: play defence against cybercriminals
- Simulate a cyberattack to identify vulnerabilities in a 'secure' network
- Penetration testing: compete against your peers and work under time pressure to hack into a specially designed "secure" website or app

4.00pm **- Close**

**exact programme format subject to change without notice.*

DAY 2: SOFTWARE ENGINEERING (PART I)

11.00am - **The World of a Software Engineer**

- Software engineering in the most cutting-edge industries and technologies

11.30am - **You Become the Software Engineer**

- Explore the languages and tools of modern software engineering, and specifically, app development
- Become the 'full-stack developer' for a start-up and be coached on how to devise the ultimate app by industry leading professionals

12.00pm - **Front End & User Experience**

- Know your audience: breaking into the minds of your consumers
- The fundamentals of the web: HTML, CSS, and JavaScript
- Demystifying the jargon and understanding the crucial elements of responsive design

1.30pm - **Lunch Break**

2.00pm - **Design a Unique App alongside Top Executives**

- Work with leading software engineers to design a bespoke app for your client
- Compete against your peers to create the most innovative solution
- Experience for yourself the challenges and innovations involved in today's technology
- Receive guided feedback at every stage from leading executives

4.00pm - **Close**

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DAY 3: SOFTWARE ENGINEERING (PART II)

11.00am - **Continue to Design an App alongside Top Executives**

- Work with leading software engineers to design a bespoke app for your client
- Compete against your peers to create the most innovative solution
- Experience for yourself the challenges and innovations involved in today's technology
- Receive guided feedback at every stage from leading executives

1.30pm - **Lunch Break**

2.00pm - **Back-End and Server-Side Development**

- How to think algorithmically and solve programming problems efficiently
- Getting hands-on with one of the most popular back-end languages: Python
- Learn how to store data in a relational database
- Integrate an API into your app
- Use these tools to develop web applications with clean, portable, well-documented code

3.15pm - **Product Management**

- Reflect on the feedback and the successes of your time as a software engineer
- Understand the role of a product manager in creating processes and solutions to bring your product to market faster and more efficiently

4.00pm - **Close**

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DAY 4: ARTIFICIAL INTELLIGENCE

11.00am - **What is Artificial Intelligence?**

- The possibilities, limitations and dangers of a rapidly-advancing technology
- Powerful examples of AI in use today
- Career opportunities: harnessing AI to solve real-world problems

11.30am - **The Evolution of Machine Learning and Big Data**

- AI vs Machine Learning case study: from chatbots to virtual assistants
- Progressive, self-learning algorithms: explore how systems apply complex mathematical calculations to big data, identify patterns and come to conclusions with minimal human intervention

12.00pm - **Supervised vs Unsupervised Machine Learning**

- Differentiating the possibilities of machine learning with labelled and unlabelled datasets
- Predicting a chosen target variable with supervised machine learning
- Explore how advanced unsupervised tools can be potential insights determined from raw, unstructured data
- Build an intimate understanding of how a machine learning algorithm learns from data: Decision Trees

1.30pm - **Lunch Break**

2.00pm - **Reinforcement Learning**

- Goal-oriented algorithms and how to attain a complex objective by learning from mistakes: State, Action, Reward
- Artificial neural networks & reinforcement learning architecture
- Theory intuition session: Deep Q-Learning
- Case study: explore machine vision capabilities in driverless cars

3.00pm - **Career Coaching & Panel Discussion**

- Your path to becoming a top Computer Scientist starting now
- A Level/IB, university and degree choices
- How to stand out: work experience, extracurriculars, hard and soft skills
- Panel discussion with industry experts

4.00pm - **Close**

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DAY 5: PERSONAL DEVELOPMENT DAY

11.00am - **Applying for top Computer Scientist Jobs**

- CVs, cover letters and application forms for top roles across computer science
- Ensuring you have both the style and substance to make it to the interview stage

12.00pm - **Work Experience**

- Coaching on how to get the work experience that top employers are looking for: both traditional forms of work experience and other relevant experience that will make your application stand out, including extra-curricular activities
- How to make the most of work experience once you get it, impressing employers and using this as a gold star on your CV

1.00pm - **Lunch Break**

2.00pm - **Assessment Centres**

- How to impress during assessment centres
- Experience mock assessment centre activities used across industries to recruit computer scientists and receive feedback on your performance

3.00pm - **Interviews**

- Coaching on how to excel at the interview stage
- Preparation; style; body language; understanding what you are really being asked; answering difficult questions and more
- Interactive interview exercises for you to participate in

4.00pm - **Close**

**In advance of the Internship you will be asked to create a CV and cover letter for a job as a top computer scientist. You will also do some personal reflection on your achievements and ambitions. You will then edit this throughout the day based on the advice you are given, to create your own personal development plan – highlighting your strengths and areas for improvement.*