

Case Study

Education
AI solution development



UCL AI PC Tech for Good

University College London (UCL) where cutting-edge tech use meets amazing industry partnership to nurture student skills development in tech for good projects

Featured Educators and Contributors:

- Dean Mohamedally, Professor of Computer Science - University College London
- Graham Roberts, Professor of Computer Science - University College London
- Costas Stylianou, Honorary Professor - University College London & Intel Industry Technology Specialist
- Cigdem Ertem, Senior Director Commercial and Education Segment - Intel
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Amidst a fast-moving skills and technology landscape, University College London (UCL)* have developed a teaching and learning approach centred around problem-based learning. Furthering student workplace readiness by combining industry project work, mentoring and cutting-edge technology use. Solutions that often feature technology such as offline AI processing are developed towards tech for good outcomes, whilst deepening student skills development.

Challenge

UCL's quest to provide students with relevant skills and experience that supports readiness for a rapidly evolving tech-fueled world remains a priority for Professors Dean Mohamedally, Graham Roberts and team. But in the face of such rapid technological change, how has the UCL Computer Science faculty sought to continue to stay at the cutting edge of skills and solution development? What are the examples of technology featured within teaching and learning and how are partners like Intel helping support continued progress?

Solution

UCL developed the Industry eXchange Network (IXN). This group of industry, academic and societal organisations collaborate in providing students with project briefs that help support student learning being "fictionless" by being both relevant and supported by industry. Solutions are developed for social good and societal progress, in areas such as healthcare and in using technology to support learners with special educational needs.

Many of the solutions developed by the students utilise AI technology that can run offline and where the AI compute happens locally on a device such as an AI PC, reducing reliance on internet connectivity and cloud-based solutions. Intel has developed a range of Core™ Ultra processors¹ that are designed with these user requirements in mind. Intel team members also continue to work in deep partnership with the UCL team in wider aspects of technology, as well as in support for student mentoring.

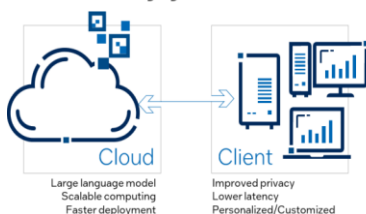
Result

Students at UCL develop both skills and experience with cutting edge tech development techniques and industry partnership. Furthermore, solutions developed by UCL learners are shared with organisations for deployment consideration in areas such as healthcare efficiency and effectiveness as well as in education.

"The IXN programme enables UCL learners to develop and apply their skills towards social impact in a "fictionless" environment supported by industry partnership"

Professor Dean Mohamedally

Benefits of Leveraging the PC for Local AI Workloads



The UCL IXN programme was launched in 2010. Aimed to increase student opportunity to complete research in real world industry defined projects and receive associated industry mentoring.

Much of this work takes place at the UCL Tech for Good lab in London. Purpose built to support student industry and community engagement in solution development. A wide range of technology is featured and explored, including AI project work.

This approach created further student opportunities by growing network and workplace visibility. Project work is focused on efforts to use AI for social good. The UCL IXN has grown extensive engagement with charity organisations which help students in both project development and potential future deployment.

Solution summary

Many of the student project solutions worked on as part of the programme utilise technology which supports offline AI and AI PC functionality. In its broadest sense, this mean that solutions complete AI tasks using the compute power of a local system, such as a PC, reducing reliance on internet connectivity and cloud-based applications.

Technology focus

Intel has developed a range of Core™ Ultra processors¹ with features such as a neural processing unit (NPU) aimed to support usage of this type.

These processors spread workload beyond the central processing unit (CPU) and graphics processing units (GPU) making use of the NPU for sustained, heavily-used AI workloads at low power for greater efficiency.²

Student project example

ReadingStar* is a solution developed by UCL students designed to support neuro divergent learners. A karaoke-based gamified speech development application which utilises AI to transcribe and match user voice input with song lyrics. The application features difficulty levels, a customizable UI and provides real-time feedback.

In team development efforts to optimise application power efficiency, both CPU and NPU performance testing was carried out. Intel® OpenVINO™³ was also used to help further refine solution performance.

The student team has demonstrated extensive partnership capability throughout the project. Intel and The National Autistic Society* have been consulted in the solution development process. The team also attended a Bett* event, showcasing the solution to a large audience.

“ReadingStar is the first Intel NPU enabled AI PC application from our UCL Computer Science undergrads. We couldn’t be more proud of the students and their professionalism in delivering this with their project partners at The National Autistic Society. “

“Academic institutions and industry partners please reach out to us. There are 20,000 student engineers approximately in the UK looking for degree-level projects, we can share our approach to help inform your efforts”

Professor Dean Mohamedally

Intel’s Costas Stylianou is a Technical Solution Specialist at Intel in the UK as well as being an Honorary Professor at UCL. His mentoring work with students has provided insight as to where and how technology is being put to impactful use.

“It has been exciting to mentor UCL student projects. Seeing where and how the teams use Intel technology as part of creating innovative solutions in social impact has been truly inspiring”

Costas Stylianou

Cigdem Ertem is the Senior Director for Commercial and Education segments at Intel globally.

“I especially love seeing what students are creating with AI PCs and Intel® OpenVINO toolkit³. They are building our future”

Cigdem Ertem

Where to get more information

Intel has produced an ‘AI in Education Infrastructure E-book’⁴ to assist the education community in AI implementation efforts.

The resource considers areas of infrastructure, hardware and security. Also featured are recommendations to help implement AI responsibly, as well as overviews of a range of AI literacy initiatives.

“We encourage you to engage with educators and tech experts as you strategize. Their perspectives enrich your planning with valuable context and clarity about AI’s opportunities, risks, and challenges in education. Please view this eBook as a guide. My team and I hope you find it helps you identify the right choices to meet your organization’s unique needs.”

Cigdem Ertem



1. <https://www.intel.com/content/www/us/en/products/details/processors/core-ultra.html>

2. <https://www.intel.com/content/www/us/en/products/docs/processors/core-ultra/ai-pc.html>

3. <https://www.intel.com/content/www/us/en/developer/tools/openvino-toolkit/overview>

4. <https://www.intel.com/content/www/us/en/content-details/845323/ai-in-education-infrastructure-e-book.html>