


## **Gifted Education Fund: Off-school Advanced Learning Programmes**

### **Programme No. 2022-02 (For primary students)**

Title of Programme	<b>Cultural Innovation Using Creative AI Technologies</b>
Programme Provider	Department of Computing & Decision Sciences, Lingnan University
Theme	STEAM-related Mentorship Programme
Maximum No. of Participants and Class Level in the 2022/23 School Year	35 students (Primary 3-5)
Pre-requisite	No special background knowledge or skills is required.
Programme Delivery Period	From July 2023 to Apr 2024 (10 months) (tentative)
Medium of Instruction	Course Material: English Class teaching/ Discussion: English supplemented with Cantonese
Objectives	<ul style="list-style-type: none"><li>• To equip gifted students at primary level with the knowledge and skills of artificial intelligence (AI) through creative learning and teaching activities and role play;</li><li>• To enhance the students' interest and knowledge of the Chinese traditional culture through recreating Chinese historical stories or folk tales with AI;</li><li>• To develop the students' creativity and artistic talents through using AI models and art technologies to compose innovative writing, drawing and music; and</li><li>• To develop gifted students' positive values and attitudes such as willingness to embrace challenge, diligence, etc.</li></ul>
Programme Outline	<p>This programme equips gifted students at the primary level with the knowledge and skills to recreate Chinese history stories and folk tales with the use of emerging AI. Students will understand and apply different AI models and art technologies to compose innovative writing, drawing and music. Elements of positive values and attitudes conducive to students' growth and development will be infused in different parts of the programme.</p> <p>The programme consists of three phases.</p> <p><b>Phase 1: Acquisition of basic knowledge and skills of AI (4 hours in total)</b></p> <ul style="list-style-type: none"><li>• 2 sessions to introduce basic knowledge and skills of AI</li></ul>

	<ul style="list-style-type: none"> <li>Major topics include definition and examples of AI (dataset, learning algorithm and prediction), and supervised learning and algorithm bias.</li> <li>By the end of this phase, students will learn how to build a bottle-paper recycling classification system using Teachable Machine and make use of their own datasets to retrain the system.</li> </ul> <p><b>Phase 2: Playing with AI (12 hours in total)</b></p> <ul style="list-style-type: none"> <li>6 sessions to cover major topics on data collection, data visualisation using Tableau, chatbot and its design.</li> <li>Students will work in groups and complete an AI project. They will build different AI systems for data visualisation tasks under the guidance and support of a mentor. By the end of this phase, students will present their results in a mini showcase event in the presence of parents, teachers and other guests.</li> </ul> <p><b>Phase 3: Creating stories with AI technology and arts technology; showcase of students' achievement (24 hours in total)</b></p> <ul style="list-style-type: none"> <li>12 sessions for students to develop an interactive e-book by using various AI tools and arts technology.</li> <li>The students will work in groups of 5. They will first use an AI tool on script writing such as the Generative Pre-trained Transformer 2 (GPT-2) Colab Notebook to compose a story related to Chinese history or folk tales. The students will then draw sketches and use AI art tools such as GauGAN or Petalica Paint to change sketches into photorealistic masterpieces. For imaginative figures in folk tales such as the monsters in the Classic of Mountains and Seas (山海經), BigGAN will be used to create never-existed images of animals, objects and people. A StyleGAN-based toolset such as Artbreeder will then be used to combine objects and generate characters and landscapes for the AI-composed story. Sounds and music are finally added by using a Deep Neural Network based toolset such as MuseNet.</li> <li>By the end of this phase, students will show their achievements and demonstrate their talents in AI, languages, Chinese history and cultures, and also visual arts in a showcase event, which will be attended by parents, teachers and other guests. Besides presenting their AI-composed e-books in Non-Fungible Token (NFT) format and answering questions, the students will also play a drama to highlight the innovative stories created.</li> </ul>
Admission Fee	Free of charge

Application Method	<p>Application form can be downloaded from the following webpage:</p> <p><a href="https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/programme/current.html">https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/programme/current.html</a></p>  <p>Please complete the application form and send it by post <u>on or before 21 April 2023</u> to the following address:</p> <p>Department of Computing and Decision Sciences SEK212/9 Simon and Eleanor Kwok Building Lingnan University Tuen Mun, New Territories (Attn: Prof Eric SEE-TO Wing-kuen)</p> <p>Remarks: Please check your email at the beginning of May 2023, you will be notified by email about the screening test.</p>
Documents to be Submitted along with the Application	<ul style="list-style-type: none"> <li>• A photocopy of report card (last two academic years)</li> <li>• Evidence of Other Learning Experiences (if any)</li> </ul>
Enquiry	<p>Dr Emily WANG Xiaoxi (Department of Computing and Decision Sciences, Lingnan University)</p> <p>Tel No.: 6041 6117 (Dr Wang) Email: <a href="mailto:emilywang@ln.edu.hk">emilywang@ln.edu.hk</a></p>
Date of Announcement of Result	By end May 2023 (tentative)