Project title: Text-Image Matching (Cross-Model Retrieval) in Computer Vision

Supervisor: Dr. Shuo Wang, School of Computer Science

Theme: machine learning, image processing, AI

Project description:

The primary goal of this project is to develop a high-performing and lightweight machine learning model for the text-image matching task. The objective is to match images to text queries using computer vision and information retrieval techniques. The final model will be deployed in a real-world system. To achieve this, this project involves three specific tasks:
1) Explore and implement image processing and machine learning algorithms that can establish associations between images and text descriptions.
2) Evaluate and compare different approaches to identify the best-performing model, considering real world challenges; for example, an image can contain many objects or noisy background.
3) Deploy the final model to the cloud and integrate it into the existing system for real-world testing.

Other information:

The successful applicant will closely work with me and my research team on the above tasks based at the School of Computer Science. This project offers a valuable opportunity to develop the technical skills in applying AI to real-world challenges, along with hands-on experience that can enhance the CV and contribute to a future career in AI with impactful outcomes.

Applicants should ideally have achieved at least 70% in their past AI-related modules and demonstrate a strong interest in image processing and machine learning. If the applicant is not studying towards a Computer Science degree, he/she must provide evidence of relevant experience for this project.

For any questions about this project and application, please contact me via email (s.wang.2@bham.ac.uk).

Award duration and value:

2 months to take place during the summer vacation 2025. The successful applicant will be employed by the University of Birmingham for a maximum of 36 hours per week, at the rate of £14.51 per hour.

Eligibility criteria:

- Students must be in the middle years of their undergraduate degree programme (i.e. have completed their 2nd year of study on a 3 year degree course, or have completed their 2nd or 3rd year of study on a 4 year degree course)
- The internship is open to those paying Home fees on their undergraduate degree programme.
- Students should be performing at 2:1 level in their undergraduate programme (as evidenced by degree transcripts).

How to apply:

Please complete the University of Birmingham EPSRC Vacation Internship application form to tell us about yourself and the proposed project, and return this to epsgraduateschool@contacts.bham.ac.uk.

Please include with your application:

- A copy of your CV
- A copy of your undergraduate degree transcript showing all marks to date

The closing date for applications is: **Monday 26 May 2025**