PhD projects in the Department of Informatics, AY 25-26 — Computer vision

The PhD projects listed below will be considered for 2025/26 studentships available in the Department of Informatics to start on 1 October 2025 or later during the 2025/26 academic year.

Please note that this list is not exhaustive and potential applicants can alternatively identify and contact appropriate supervisors outlining their background and research interests or proposing their own project ideas.

Each project is designated for a single student, meaning it can only be assigned to one successful applicant. Some projects come with allocated studentships, while others are eligible for "unallocated" studentships. Applicants who apply for projects with allocated studentships and are selected will be offered a full studentship. In the project list, these are marked as "studentship allocated." Applicants chosen for other projects will compete for the unallocated studentships.

We welcome applications from students who have secured, or are applying for, or plan to apply for other funding (within other studentships internal to the university or external schemes) and from self-funded students. See also this list of funding opportunities available at King's for post-graduate research in Computer Science.

PhD projects

- Leveraging Generative AI for Creativity Education (studentship allocated)
- Improving active learning strategies for limited annotation budgets (studentship allocated)
- Embodied Approaches to Assistive Technology
- Enabling Accessible Remote Communication Environments

Leveraging Generative AI for Creativity Education

Supervisor: Zheng Yuan

Areas: Artificial Intelligence (symbolic AI, logic, etc.), Computer vision, Machine learning / Deep learning, Human-centred computing (human-computer interaction), Natural Language Processing

Project Description

Creativity is a crucial skill in today's world, driving innovation, problem-solving, and cultural expression. However, teaching and assessing creativity -- especially in fields like creative writing and visual arts -- pose significant challenges due to the subjective nature of creative outputs. The rise of Large Language Models (LLMs) and Generative AI provides new opportunities for enhancing creativity education by generating personalised, adaptive feedback and supporting learners in improving their creative skills across multiple modalities, such as writing and drawing. This project will explore the use of multimodal LLMs and Generative AI to enhance creativity education, offering new ways to assess creativity and helping learners across disciplines such as creative writing and digital arts. By leveraging the capabilities of multimodal models, this research will investigate how AI can support, nurture, and assess creativity in a personalised and scalable manner. Research Questions: 1) How can LLMs and Generative AI effectively assess creativity in different forms, such as written stories, poems, or drawings? 2) What are the most effective ways for AI systems to provide feedback that nurtures creativity, without stifling originality? 3) How can multimodal AI systems enhance cross-disciplinary creative education (e.g. combining writing and drawing) to create richer, more engaging learning experiences? 4) What metrics and frameworks can be developed to evaluate the success of AI-generated feedback and creativity assessment systems?

Improving active learning strategies for limited annotation budgets

Supervisor: Luis C. Garcia Peraza Herrera

Areas: Artificial Intelligence (symbolic AI, logic, etc.), Machine learning / Deep learning, Computer vision

Project Description

In machine learning, determining the subset of data points (e.g. images, videos) for annotation emerges as a critical decision-making process. The selected data points carry the responsibility of providing a representative snapshot of the diverse scenarios anticipated during real-world testing. Despite the multitude of proposed strategies for data point selection, an enduring observation persists, suggesting that random selection, especially in low-budget scenarios, often proves to be an optimal approach. The overarching objective of this project is to propel active learning strategies tailored specifically for situations characterized by highly limited annotation budgets. This pursuit is particularly relevant in fields with stringent budget constraints, such as medicine.

References

https://visurg.ai/join

Embodied Approaches to Assistive Technology

Supervisor: Timothy Neate

Areas: Human-centred computing (human-computer interaction), Machine learning / Deep learning, Computer vision

Project Description

Non-verbal expression plays a crucial role in everyday communication, whether nodding to indicate agreement or using vocal tone to imply a question. For individuals with language impairments, non-verbal cues are essential for both comprehension and expression. However, most assistive technologies overlook these vital communication methods (see our systematic review). This PhD project will extend our research on wearable devices such as smartwatches, smartbadges, and augmented reality (AR) tools, focusing on innovative solutions for non-verbal communication. You will collaborate directly with communities who experience language impairments to design technologies that support effective communication in real-world settings.

Enabling Accessible Remote Communication Environments

Supervisor: Timothy Neate

Areas: Computer vision, Human-centred computing (human-computer interaction)

Project Description

Remote communication, such as videoconferencing, has become an integral part of daily life. However, it often lacks essential elements like non-verbal cues that are critical for effective communication. This can pose significant challenges for people with language impairments. Building on our previous research into the accessibility of videoconferencing for individuals with aphasia, this PhD will explore new ways to enhance remote communication technologies. By collaborating directly with these communities, you will design and develop tools that make videoconferencing and other online environments more inclusive and supportive for all users.