

## **Project Title: Developing technology and developing children: Generative AI and learning, across early years**

Principal Supervisor: Professor Natasha Kirkham

Secondary Supervisors: Professor Denis Mareschal

Collaborative Organisation: Care-Tech

### **Description:**

Background: This project will investigate the impact of commonly used generative artificial intelligences (e.g., chatGPT) and AI-enhanced toys (e.g., companions, pet-bots, programmable AI) on learning and development in early childhood, across different educational settings. Specifically, the proposed work will focus on early learning markers, such as working memory, selective attention, distraction and delay of gratification, within the framework of educational play-experiences with AI-enhanced and non-AI-enhanced toys. The studies will focus on both previous experiences with AI as well as lab-taught AI games, recruiting from both neurotypical and neurodiverse populations, and across a broad set of socio-economic statuses within London, between 3 and 7 years of life (i.e., from pre-school age to primary school), with a longitudinal follow-up of the 4-yr-olds during their year 1.

### **Methodology**

This PhD project will employ behavioural methods, including physical interaction with AI-enhanced toys, online AI games, and motion capture technology (to measure distraction and engagement). The project will be set within two facilities: 1) the CareTech Home Lab at the Centre for Brain and Cognitive Development (Birkbeck, University of London), making use of the testing facilities, cameras, motion capture set-up, and smart screens, and 2) CareTech Children's Services, supporting neurodiverse children.

The project will include two 3-month internships hosted by CareTech. The first internship will be within the Children's Services sector, both the residential and educational services, and the second will be focussed on the Smartbox Assistive Technology.

### **Candidate Requirements:**

#### **Essential criteria**

- Upper 2:1 ( $\geq 65$  pass mark) or 1st class undergraduate degree in a psychology or social science discipline.

- Master's degree in research methodology, psychology or similar discipline. The applicant should expect any postgraduate degree to be awarded prior to commencing the PhD.
- Evidence of experience or training in psychological research methodology (e.g., experimental dissertation at BSc or MSc level), if not apparent from the above.
- Experience of working with/conducting research with children
- Evidence of excellent organisational, problem-solving and analytical skills.
- Data management skills.
- Willingness to travel within and possibly beyond London for research purposes.
- Ability to work independently as well as in a collaborative research team.

### **Desirable criteria**

- Research experience in a field relevant to the PhD studentship.
- Understanding of neurodiversity issues/research experience in this context.
- Publications in peer-reviewed academic journals.

The post-holder will be expected to contribute to the wider activities and life of the CBCD and Psychological Sciences at Birkbeck.

Please support your application by detailing modules or courses undertaken during your studies, research internships or employment, and any peer-reviewed, academic publications.

### **Eligibility:**

Only applicants eligible to pay fees at the UK rate will be considered.

### **Key References:**

Broadbent, H. J., Osborne, T., Rea, M., Peng, A., Mareschal, D., & Kirkham, N. Z. (2018). Incidental category learning and cognitive load in a multisensory environment across childhood. *Developmental Psychology*, 54(6), 1020

Kirkham, N. Z., Rea, M., Osborne, T., White, H., & Mareschal, D. (2019). Do cues from multiple modalities support quicker learning in primary schoolchildren?. *Developmental Psychology*, 55(10), 2048.

Zhao, J., Lin, G., Yip, J., & Bai, Z. (Eds.). (2026). [Special Issue on Child-Centred AI](#). *International Journal of Human-Computer Studies*. 204.

## **Deadlines and how to apply**

The candidate will be recruited through a formal, open recruitment process managed through the Birkbeck recruitment system. All applicants will be required to complete a written application form and if they fulfil the eligibility criteria, they will be invited to interview. The studentship will be advertised through Birkbeck, the Doctoral Training Partnerships, [www.jobs.ac.uk](http://www.jobs.ac.uk) and [www.findaphd.com](http://www.findaphd.com).

**Application deadline:** 15<sup>th</sup> May 2026

**Likely dates for interviews:** TBC

Please submit applications in the following format:

- A CV, including full details of all University course grades to date.
- Contact details for two academic or professional referees.
- A personal statement (750 words maximum) outlining (i) your suitability for the project with reference to the criteria above, (ii) what you hope to achieve from the PhD and (iii) your research experience to date.

Only shortlisted candidates will be contacted.

## **Further details about the project**

Informal enquiries: Please reach out to Natasha Kirkham at [n.kirkham@bbk.ac.uk](mailto:n.kirkham@bbk.ac.uk)

For full details about PhD study at Birkbeck and the graduate admission policy visit <https://www.bbk.ac.uk/prospective/research>