Abertay University

Candidate Brief



ML/AI Research Engineer





Closing Date	12 p.m. (Noon) on Sunday 6th December
Interview Date	Monday 14th December
Grade/Salary	Grade 7/8 (£39,560.18 - £57,666.28), dependent on experience
Hours	Full time, 35 hours per week
Type of Contract	Fixed term (until March 2029)
Pension Schemes	Abertay University Pension Scheme (AUPS)
Annual Leave Entitlement	33 days pro rata, plus 8 plus closure days over the festive period, and 2 additional closure days pro rata which are determined by the University annually.
Recruiting Manager	Ruth Falconer
Recruiting Manager Contact	r.falconer@abertay.ac.uk
Area	CoSTAR
Location	Pinewood Studios (National Lab), Abertay University (Dundee), with some UK travel expected.

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1. Abertay University

Abertay University is a modern, pioneering, and ambitious university with around 5,000 students. We have a strong and evolutionary tradition of preparing students for the industries and jobs of the modern world. Abertay has made its mark with high-quality, well-directed teaching and research which, in turn, provides a stimulating and enriching experience for our students.

Abertay University has achieved the Athena Swan Bronze Award, recognising the university's achievements in respect of gender equality. The university is also proud to hold the Race Equality Charter Mark Bronze Award for our ongoing commitment and active steps to improving race equality for our staff and students.

Visit our website for more information on:

- Working at Abertay
- Teaching and Learning
- Research

The City of Dundee

Dundee is a historic city set in a beautiful, sunny location on the east coast of Scotland. As well as being a compact city, Dundee has great schools and beautiful surrounding countryside. Just a little over an hour's drive away from Edinburgh, Glasgow and Aberdeen, Dundee's property prices can be half those of Scotland's larger cities.

Dundee is the UK's first UNESCO City of Design based on its contributions to medical research and the creative industries. From September 2018 Dundee became home to the second Victoria and Albert Museum, the V&A Museum of Design.

The Campus

The heart of the University lies in Bell Street, with most teaching and learning facilities, offices, research centres, and the Library all within just a few yards of each other.

You can find out more about the city and Abertay's campus by watching our Working at Abertay video.

Employment within Abertay

Abertay University recognises the value of a diverse working environment, and is keen to receive applications from individuals from across all of the equality protected characteristics (race, gender, disability, gender reassignment, age, sexual orientation, religion/belief, pregnancy/maternity, marriage/civil partnership).

The University also supports opportunities for part-time and flexible working and has policies in place to facilitate this. More information on our policies can be found at https://www.abertay.ac.uk/about/working-at-abertay/.

2. The Area

This role sits within the Faculty of Design, Informatics and Business at Abertay University which is the home of Abertay's undergraduate and postgraduate degree programmes in games, digital arts, cybersecurity, applied computer science, business and law. The Faculty consists of four Departments: Game Technology and Mathematics, Games & Arts, Cybersecurity, and Dundee Business School.

Abertay was the first university to offer degrees in Computer Games Technology and Ethical Hacking, and continues to be recognised as an international leader in its fields. The Faculty is designated the National Center for Excellence in Computer Games Education and has pioneered integrated cross-disciplinary practice-based learning through its workplace simulation approach. Since 2015, Abertay has been designated by the Princeton Review as the best University in Europe to study game design.

Building on this success the Faculty has attracted substantial funding to grow the regional economy. The Faculty is part of the UK Government's £76.5M investment in virtual production and performance, CoSTAR. We are part of the CoSTAR National Lab, led by Royal Holloway University of London, and we lead the CoSTAR Realtime Lab in partnership with the University of Edinburgh. CoSTAR will deliver new products, processes and IP, and support the creation of new businesses in this exciting new field.

Our research agenda supports and benefits from the University's research strategy and interdisciplinary and practice-based research is strongly encouraged. The Faculty undertakes research and knowledge exchange activities to ensure the currency, development and health of its subjects and disciplines within the University as a whole. The Faculty is also home of Dare Academy, the Securi-Tay conference, and has long-established professional links with Dundee's thriving computer games community, international companies including Microsoft, Epic, Rockstar North, and Sony, and industry bodies such as BAFTA, UKIE and TIGA. The successful candidate will have the opportunity to propose and undertake creative projects within the Emergent Technology Centre. Launched in 2019, this facility comprises a series of interconnected specialist labs and studios dedicated to research in games development, visual design, usability, and XR and immersive experiences.

Academic staff in the School have **research** interests aligned with the following themes:

- Real-time 3D processes and workflows for Virtual Production, Games, Applied Games and XR experiences.
- Artificial Intelligence
- Technical art
- Next generation networking and 5G/6G technologies
- Algorithm optimisation through hardware acceleration
- 3D content creation
- Low latency and distributed computing
- Interactive design in the performing arts, experimental game jams, and game aesthetics.

3. The Role

Role Specific Duties and Responsibilities

The post holder will work closely with the CoSTAR National Lab team across Abertay, Surrey and Royal Holloway Universities as well as working with industry and the CoSTAR network labs.

As an ML/AI Research Engineer you will:

1. Work with Abertay and CoSTAR staff and partners to develop effective AI-powered software and tools to produce prototypes in areas related to emerging creative technologies with a primary focus on AI/ML and multimodal Generative AI (text, image, video, 2D/3D content, etc).

2. Develop applications in areas such as AI & Machine Learning; games & 3D development; immersive experiences such as augmented and virtual reality; advanced production technologies such as Virtual Production, Extended Reality; Immersive and Live entertainment.

3. As an ML/AI Research Engineer in our team, you will work as part of a multidisciplinary innovation team focused on ensuring high quality and performant code is delivered in line with project goals and delivery cycles.

4. Get the opportunity to work with a range of content creators, creative technologists, designers, research producers, academic and industry experts as well as to collaborate with external companies.

5. Be part of a busy and dynamic environment and may be asked to contribute to other research & development activities across the partner institutions of the CoSTAR National Lab.

This post will allow you to work at the forefront of innovation in the Creative Sector and work with an interdisciplinary team of experts in industry and academia, contributing to national research networks.

4. Person Specification		
Attributes	**Essential Selection Criteria**	**Desirable Selection Criteria**
Education/ Qualifications	Postgraduate degree (or equivalent experience) in Computer Science, Machine Learning/AI, Computer Vision, NLP, Generative AI, or a related field; or a strong track record in real-time graphics, 2D/3D graphics, technical art, or animation applied to AI.	PhD (or be close to submission) or practical experience in a relevant discipline such as Computer Science, AI, Graphics, Games, Animation, XR and/or Virtual production.
Knowledge and Experience	**Specialist Knowledge and Applied AI Expertise:** AI/ML/DL & GenAI: Deep knowledge and hands-on experience in developing, training, fine-tuning, and adapting diffusion and transformer models (and other related areas such as Autoregressive models, Variational Autoencoders, RAG, VLMs, and RL / RLHF) for text, image, video, and 3D applications; strong proficiency in PyTorch (or JAX) and Python; practical experience with C++ for performance-critical modules; and a portfolio or GitHub demonstrating robust development and testing practices. Multimodal: Experience with conditioning and control methods (e.g., LoRA/PEFT, ControlNet, DreamBooth) and data curation/augmentation across text, image, video, and 3D modalities. Evaluation and Safety: Familiarity with key evaluation metrics (e.g.,	**Technical Expertise:** AI Infrastructure: Expertise in NVIDIA hardware and software technologies, GPU clusters, SLURM, Kubernetes, and containerized scalable deployments; skilled in optimizing model inference and training for peak performance, speed, and GPU VRAM efficiency. Experienced in developing custom CUDA/Triton kernels and performing detailed GPU performance profiling. 3D/Geometry ML and Multimodal AI: NeRF/Gaussian Splatting/SDFs; meshes & point clouds; text-to-3D pipelines. Video generation and temporal alignment; tracking and frame-consistent conditioning. **Research and Professional Experience:** Strong research background with a proven publication record and expertise in academic writing, including research papers, curriculum development, and teaching materials. Demonstrated experience in

	FID, CLIPScore, R-precision, temporal consistency) as well as research ethics, copyright, and dataset licensing considerations. Distributed Training and MLOps: Expertise with DDP, FSDP, and DeepSpeed frameworks; experiment tracking using tools such as W&B or MLflow; emphasis on reproducibility, containerization, and CI/CD pipelines. Inference and Systems: Experience in optimized real-time deployment using TorchScript, ONNX, TensorRT, and Triton Inference Server; proficient in GPU utilization and latency profiling. **Soft Skills:** Strong analytical thinking, problem-solving ability, effective collaboration and communication, and solid project and time management.	mentoring and supervising junior researchers, supported by strong adaptability and innovative thinking in dynamic, evolving research environments. Skilled in networking and collaboration within academic and industry settings, with flexibility to travel and work across diverse contexts.

5. Competencies

In order to achieve Abertay University's goals all employees need to demonstrate the following competencies:

Effective Communication

Definition: The use of appropriate communications media and methods, to convey, explain or discuss information in a manner that is clear and accurate for the target audience.

Grade 7 Expected Level: The ability to use verbal and written material in a well structured, clear and concise manner. Take the initiative to keep others informed and ensure an appropriate method of information is adapted to meet the needs of the recipient to help their understanding of the topic.

Grade 8 Expected Level: Anticipates the others' needs for information and adjusts the level of content to suit audiences with varying levels of understanding and ability. Provides information in a suitable format so that the others' needs are met. Uses a range of different formats, chosen to the diverse needs and ensure understanding.

Liaison and Networking

Definition: Active participation in, contribution to or leadership of internal/external networks which build positive relationships and promote collaborative working.

Grade 7 Expected Level: Exchanges information and ideas with others outside own teams as a means of keeping up to date. Involved in networks to benefit own area of work and promotes a positive image of the Institution and own team internally and externally.

Grade 8 Expected Level: Works across team boundaries to build and strengthen working relationships and shares information and ideas to help others develop their practice. Is involved in networks to pursue a shared interest as a requirement of the role.

Planning & Organising

Definition: Proactive planning, prioritisation and organisation of work activities and resources to ensure best value is achieved whilst maintaining service availability and quality standards.

Grade 7 Expected Level: The ability to agree and plan objectives and resource requirements for area of operation and monitor overall progress, ensuring corrective action is taken if required.

Grade 8 Expected Level: Gathers information to identify future demands and opportunities and develops longer term plans. Co-ordinates and reviews the work of others to improve performance and use of resources and involves other areas appropriately and co-ordinates effort and resources so performance standards and shared objectives are achieved.

Initiative and Problem Solving

Definition: Showing desire for continuous improvement in individual and team performance by actively contributing to problem solving and responding positively to opportunities for development.

Grade 7 Expected Level: The ability to analyse problems to identify their causes and take action to prevent recurrence of problems. Consider possible solutions to identify those which offer wider benefits.

Grade 8 Expected Level: Uses experience, the views of others and own judgement to resolve issues and in developing solutions to resolve unprecedented problems. Identifies relationships between apparently separate issues.

Decision Making

Definition: Active contribution to/leadership of decision-making processes within the team which ensure objectives are achieved and quality standards are maintained.

Grade 7 Expected Level: Considers wide impact of decisions and assesses range of possible outcomes. Uses judgement to determine most appropriate and likely solution. Able to provide advice and guidance on complex issues to ensure that decisions are informed by relevant evidence.

Grade 8 Expected Level: Considers wider impact of decisions, assesses possible outcomes and their likelihood. Uses judgement to make decisions with limited or ambiguous data and takes account of multiple factors. Distinguishes between the need to make a decision, when to defer and when not to take a decision.

Sensory and Physical Demands

Definition: Applying skilled techniques and coordinating sensory information with high level of precision and/or accuracy

Grade 7 Expected Level: The ability to continually develop their level of expertise and ability and advance working practice through skill and technique development. Use of a range of skills to develop and refine the abilities of others.

Grade 8 Expected Level: Demonstrates mastery of a wide range of specialist methods, tools, and equipment to perform highly complex tasks. Applies advanced techniques to ensure safe working practices, while proactively identifying and implementing improvements to methods and processes. Leads by example and drives continuous development of working practices through innovation and expertise.

6. Application Process

Making your application

Internal Applicant

When you are ready to start your application, you can apply via Employee Self-Service, there will be a link called 'Apply for a Job'. The application form will be populated automatically with the personal data currently held about you.

External Applicant

When you are ready to start your application, you will be prompted to register on our online recruitment system, which can be found at https://www.abertay.ac.uk/about/working-at-abertay/jobs

You will be guided through all of the stages of the application form. You will also be asked to upload your curriculum vitae. Within the online application form you will be asked to provide a supporting statement, this should be used to provide evidence that you meet all essential criteria within the person specification, including the essential competencies. Providing evidence is crucial as the essential criteria are mandatory requirements for the post. If you do not provide sufficient evidence for these requirements then we cannot guarantee that you will be short-listed for interview.

Interviews

It is anticipated that interviews for the post will be held on the date stated on the first page of this document or as soon as possible after the closing date. Applicants who are shortlisted for interview will be sent details of time and venue as soon as possible after the closing date.

If you have any queries regarding your application, please contact:
recruitment@abertay.ac.uk; +44 (0)1382 308961

Committed to Equal Opportunities

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