

AI & Code Integrity Lead

Reports To

Head of Research Management

Role Purpose

CRUK is investing significantly in exploring how frontier AI could transform cancer science and patient outcomes, and the AI and Code Integrity Lead will play a critical role in ensuring these technologies are developed and applied responsibly, robustly and reproducibly across our research.

The postholder will provide strategic leadership for Code Integrity and the responsible development, use, governance and stewardship of computational methods and artificial intelligence across the Cancer Research UK Scotland Institute (CRUK SI).

Within this role, “Code Integrity” refers to the standards and practices that ensure computational research is transparent, traceable, reproducible and appropriately validated, whether it involves bespoke code, research software, third-party tools, computational models or AI-enabled methods.

The postholder will establish and maintain an Institute-wide framework for Code Integrity and Responsible AI, extending the CRUK SI's strong culture of Research Integrity, Data Management and Scientific Excellence across computational research, and into the rapidly evolving domains of artificial intelligence and data-driven research. They will develop institutional standards, governance processes, training programmes, mentoring networks and support mechanisms that promote transparency, accountability, reproducibility, provenance and ethical innovation across all computational and AI-enabled research activities.

Working across clinical, biological, computational and technology disciplines, the postholder will foster a culture of responsible innovation, interdisciplinary collaboration and continuous learning, ensuring that researchers have the skills, resources and guidance required to develop, use, deploy and evaluate computational and AI approaches that are

scientifically rigorous, reproducible, trustworthy and aligned with regulatory, ethical and legal requirements.

The role will act as the focal point for developing the CRUK SI's computational and AI-enabled workforce, embedding best practice in Code Integrity and Responsible AI use, working closely with the Research integrity lead and Data science teams, while helping to foster integrated teams that combine biological, clinical, computational and data science excellence.

The postholder will combine scientific leadership with governance, stewardship, support, mentoring and workforce development activities, positioning the CRUK SI as a national and international leader in rigorous computational research and the responsible application of artificial intelligence to cancer research.

Key Responsibilities

Strategic Leadership

- Lead the implementation and continued development of the CRUK SI's Institute-wide Code Integrity framework across computational research.
- Provide strategic advice to Senior Leadership on risks, standards and infrastructure relating to research software, computational reproducibility and responsible AI.
- Develop and implement the CRUK SI's Code Integrity and Responsible AI Strategy.
- Provide expert advice to the Institute Director and Senior Leadership Team on opportunities, risks and emerging developments in AI, machine learning and data-driven research.
- Supporting horizon-scanning of emerging technologies including foundation models, multimodal AI, digital pathology, spatial biology, multi-omics analytics and computational oncology.
- Establish the CRUK SI as a recognised leader in rigorous computational and responsible AI-enabled cancer research.

- Represent the CRUK SI on national and international AI, data science, governance and policy initiatives.

Code Integrity, Computational Governance and Responsible AI

- Develop, implement and maintain an Institute-wide Code Integrity and Responsible AI Framework comprising governance, stewardship, training, standards, guidance, toolkits and best-practice resources.
- Establish baseline standards for computational provenance, traceability, versioning, documentation, environment capture, reproducibility and proportionate validation across all computational research, including AI-enabled.
- Lead the development of policies governing responsible AI, generative AI, agentic AI, machine learning and advanced analytics.
- Ensure compliance and have oversight on emerging AI regulatory frameworks.
- Develop risk-based approaches to AI validation, model evaluation (including agentic harness evaluation), monitoring, auditability, bias assessment and quality assurance.
- Work across teams, including the Research Integrity Service, Data team and the Computational Science teams to promote human accountability for AI-assisted research outputs and ensure appropriate oversight of AI-generated content and analyses.
- Chair institutional committees concerned with AI Governance, Responsible Innovation and code Integrity.
- Support institutional committees concerned with Research Integrity and Data governance

- Develop frameworks for the governance of AI and health data, foundation models and AI-enabled decision support systems.
- Develop and maintain practical Code Integrity standards, checklists and guidance for key computational domains, including bioinformatics, image analysis, AI/deep learning, computational modelling and bespoke data analysis.
- Ensure standards cover both software developed within the CRUK SI and third-party/open-source/commercial software used to generate research findings.
- Lead implementation of the CRUK SI's publication-time Minimum Computational Archive (MCA), ensuring that key computational results can be traced to the code/software version, environment, parameters/configuration and input data used to generate them.
- Coordinate proportionate publication-readiness checks for computational research, working with domain experts where specialist review is required.

Training, Mentoring and Workforce Development

The postholder will lead the development of a CRUK SI-wide AI and code adoption Programme that equips scientists with the skills, knowledge and interdisciplinary mindset required to lead cancer research in the era of computational data, artificial intelligence and precision medicine.

Key responsibilities include:

- Design and deliver core Code Integrity training for staff generating or using computational research outputs, covering provenance, versioning, documentation, reproducibility, proportionate validation, computational archiving and responsible AI use.
- Coordinate role-appropriate, domain-specific training in bioinformatics, image analysis, AI/deep learning, computational modelling and bespoke data analysis in collaboration with relevant Institute experts.
- Design and deliver a coordinated, centralised and comprehensive AI training ecosystem that breaks down disciplinary boundaries

between biology, clinical research, computational science, engineering and data science.

- Develop and maintain an institutional framework for AI capability development encompassing Governance, Ethics and Integrity; AI Development and Implementation; Mentoring and Communities of Practice.
- Create personalised, competency-based learning pathways that identify individual training needs and provide researchers with access to tailored development opportunities. These may include formal courses, fellowships, placements, secondments, networking opportunities, communities of practice and collaborative learning activities.
- Establish and oversee a coordinated portfolio of AI and Data Science training opportunities by leveraging existing programmes across CRUK, partner organisations, UKRI, NHS, industry and international networks while identifying critical capability gaps requiring new interventions.
- Lead the development of programmes that support and foster interdisciplinary teams ensuring all have access to appropriate skills development and career pathways and identifying gaps where relevant.
- Develop mechanisms to attract, develop and retain world-class computational, and quantitative expertise within the CRUK SI and the wider CRUK community.
- Establish mentoring programmes that recognise advanced analytical and AI skills are developed through real-world experience, continual support and practical application rather than training alone.
- Ensure researchers have access to dedicated mentoring teams capable of providing ongoing support and mentorship following completion of formal training activities.

- Establish and coordinate a network of AI Champions and Code Integrity Champions, mentors and Communities of Practice that support peer-to-peer learning, knowledge exchange, cross-disciplinary collaboration and leadership development.
- Coordinate hackathons, workshops, fellowships, internships, industry placements, cross-institutional secondments and collaborative learning initiatives that accelerate capability development in AI-enabled cancer research.
- Work closely with the CRUK Data Community, AI initiatives, UKRI programmes, NHS partners and academic institutions to maximise training opportunities and strengthen national AI capability.
- Develop competency frameworks and evaluation mechanisms to monitor participation, skills development, mentoring outcomes and programme impact.

Research Integrity, Reproducibility and Data Stewardship

- Work with the Research Integrity Service and Data team on promoting and developing standards for metadata, provenance, reproducibility and transparency across computational research activities, including AI-enabled research
- Work with research groups to improve reproducibility and confidence in computational results through appropriate documentation, versioning and validation practices.
- Establish good practice for version control, computational environment capture, research software documentation, validation/QC and long-term preservation of computational artefacts.
- Work with the Research Integrity Service, Data team and IT to provide an Institute-managed repository and sustainable mechanisms for software/code retention, access control and archival releases.

- Develop and support standards for effective handover between experimental and computational teams, including minimum expectations for metadata, data readiness, QC status, analysis provenance and return of computational results.

Culture, Inclusion and Community Building

- Promote an open, inclusive and supportive environment in which individuals from all backgrounds can develop, contribute and thrive in computational and AI-enabled research.
- Support the CRUK SI's commitments to Equity, Diversity and Inclusion and researcher career development.
- Build a collaborative culture that encourages innovation, knowledge sharing and responsible research conduct.
- Develop initiatives that strengthen connectivity between clinical, laboratory and computational researchers.

Person Specification

Essential

Qualifications

- PhD in Artificial Intelligence, Data Science, Computer Science, Computational Biology, Bioinformatics, Cancer Research or a related discipline.

Knowledge and Experience

- Significant experience in computational research, research software, data science, AI/machine learning, bioinformatics or related quantitative approaches in biomedical or cancer research.

- Experience in developing governance, policy, research integrity or responsible innovation frameworks.
- Strong knowledge of responsible AI, data governance, GDPR, research ethics and regulatory requirements.
- Experience of leading multidisciplinary scientific programmes and collaborations.
- Experience of designing and delivering training, mentoring and professional development programmes.
- Experience of developing communities of practice and capability-building initiatives.
- Excellent communication, leadership and stakeholder engagement skills.
- Strong understanding of reproducible computational research, including version control, provenance, documentation, validation/QC and computational environment management.
- Experience developing or implementing standards, guidance or governance for research software and computational workflows.

Desirable

- Experience with clinical, pathology, imaging or multi-omics datasets.
- Experience developing AI governance or responsible AI frameworks within research organisations.
- Knowledge of healthcare AI regulation and medical device requirements.
- Experience in workforce transformation or organisational capability development.
- Experience working across academia, healthcare and industry partnerships.
- Experience of multiple computational disciplines, for example bioinformatics, image analysis, modelling or bespoke data analysis.

- Familiarity with research-software stewardship, FAIR software principles, software archiving and reproducibility infrastructure.