![Fraunhofer MEVIS logo]

Call for Creatives at the University of Edinburgh for a Residency & Science Engagement Programme

STEAM Imaging VI: Resonant Connections through Design and Data

Engagement in MRI Sequence Development, Using No-Field, Low Field and Research MRI Scanners
Closing Date for Applications: 2nd June 2025

This opportunity is for University of Edinburgh based PhD postgraduate students.

How can creative exploratory approaches help demystify and increase diverse access to and engagement with Resonance Imaging technology?

Are you passionate about using design to make a positive impact and improve health and wellbeing in Society? Do you want to explore the space between creative and scientific practice and how collaborating across disciplines might enable better understanding of specialist healthcare tools and expertise?

Are you a University of Edinburgh postgraduate PhD student (creative), or a pair (creative + collaborator), interested in combining design thinking and data science, and curious about the future of research and development in digital medicine? This is your unique opportunity to explore and demystify Magnetic Resonance Imaging (MRI), while gaining valuable insights into the rapidly evolving digital medicine market.

You'll gain hands-on experience with No-Field, Low Field, and Research MRI scanners (read more about this technology below) while exploring innovative ways to program MR sequences. Your creative perspective exploring and combining data science, design thinking, and critical inquiry will be invaluable as you share your insights with Fraunhofer scientists and school students in Bremen, Germany – a joint STEAM workshop is integral part of the programme as well as audience exchange/engagement Edinburgh, United Kingdom.


Call for Creatives – STEAM Imaging VI
Fraunhofer MEVIS in partnership with the Institute for Design Informatics invites postgraduate PhD students, combining design thinking and data science, to engage in a transdisciplinary exploration of MRI sequence development, using no-field, low field and research MRI scanners, where creativity meets cutting-edge medical technology. This innovative concept aims to foster a deeper understanding of MRI programming and explore how design and technology can converge in impactful ways. We invite you to apply, to explore new frontiers, and contribute to shaping the future of MRI sequence development by peeking into a new discipline, exploring and showcasing the value of inter- and multidisciplinary approaches in the context of new medical imaging technology. This opportunity emphasises a transdisciplinary approach, where technology, design, and healthcare intersect in an exciting space of exploration and collaboration.

About the MRI Technology and gammaSTAR
MRI is an essential diagnostic tool, but programming the sequences that guide the scanner during the image capture process is complex and requires specialised knowledge. Fraunhofer MEVIS is simplifying this process by using no-field scanners, compact tabletop MRI devices, large MRI scanners, and the in-house-developed gammaSTAR software platform. This approach makes MRI sequence programming more accessible to researchers, clinical staff, students, designers, and artists. The gammaSTAR platform simplifies MRI sequence programming with modular tools adapted for different MRI devices, lowering the entry barrier.

The No Field Scanner
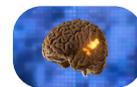
In the future, Fraunhofer MEVIS will develop workshops for different user groups utilizing modular building blocks, which can be combined in various ways to suit each target group's needs. These

modules range from basic blocks designed by physicists to advanced ones for medical professionals creating new technologies. Tools are needed for visualizing, inspecting, controlling, simulating, and combining these building blocks in an intuitive way to create new MRI-technology and applications. It also facilitates the use of MRI phantoms —3D-printed models that can be used as stand-ins for human tissues —that make sequence testing cheaper and easier, promoting faster and more efficient development of customised MRI sequences, demonstrating the clear potential for gammaSTAR to become an industry standard. Applicants will be encouraged to explore this groundbreaking software and its applications where this is of particular interest.

Design and Data combined approach

Design Informatics is a field of study that combines data science with design thinking to create meaningful data-driven experiences, products, and services. The central premise of design informatics is that data is a medium for design: by shaping data, we shape the world around us.

For this project we are seeking creative proposals inspired by this approach and that:
• bridge the gap between MRI physics and those interacting with these technologies
• explore human centered design in the context of digital healthcare technologies
• explore the potential of user-friendly digital solutions that empower patients, clinicians and members of the public to engage with MRI technology

In the rapidly evolving field of medical imaging, a design informatics approach has the potential to play a pivotal role in simplifying complex scientific tools for experts and making them accessible to non-experts, positively contributing towards making advanced tools more intuitive and effective. How can raw data be transformed into actionable insights? How can design thinking and data science be combined to ensure that technology meets real human needs, leading to better healthcare outcomes? As the demand for data-driven design for AI-powered healthcare solutions, and user-centered medical research technologies continues to grow, the need for cross disciplinary experts, to contribute to digital medicine is skyrocketing.

About STEAM Imaging Residency

This is the sixth iteration of the Fraunhofer MEVIS STEAM Imaging residency program and the second time for Fraunhofer MEVIS and the Institute for Design Informatics to partner together for this programme, which fosters engagement of the younger generation with future technologies through on-site and online exchanges, as well as research explorations in digital medicine. At the heart of this Residency and Science Engagement programme is collaboration, co-development and co-delivery of a STEAM workshop with scientists from Fraunhofer MEVIS for school students, which is an integral part of the two-week stay in Bremen in November 2025. Following the two-week on-site Residency, you will have the opportunity for further remote exchange with the scientists for 6 weeks and finally share your journey, in a creative showcase in Inspace at the Institute for Design Informatics at the University of Edinburgh during the 2026 Edinburgh Science Festival, promoted through Ars Electronica channels. You'll inspire curiosity, foster dialogue, and build bridges between fields, offering audiences a hands-on experience with MRI technology, with the opportunity to incorporate live image capture via Zoom with the MR lab team in Germany.

STEAM Imaging aims to foster cross-disciplinary collaboration and facilitate effective communication among participants. By bringing together individuals from different fields and the younger generation, we aim to provide fresh perspectives and innovative solutions to real-world questions and challenges in digital medicine. By involving creatives working at cross sections of Design and Data, we aim to raise broader questions and support alternate approaches to exploring and presenting scientific topics in the field of digital medicine. Additionally, we strive to promote cross-sectional and cross-disciplinary understanding and build lasting ties between the organizations.

This Residency & Science Engagement Program is a partnership between The Fraunhofer Institute for Digital Medicine MEVIS in Bremen, Germany, and the Institute for Design Informatics in Edinburgh to create this unique opportunity to explore the potential for application of creative multi- and transdisciplinary approaches in digital medicine. This collaboration involves the International Fraunhofer Talent School Bremen, Oberschule am Waller Ring in Bremen, and is supported by Ars Electronica in Linz, Austria.

What We Are Looking For

Fraunhofer MEVIS and the Institute for Design Informatics invite PhD postgraduate students from across the University of Edinburgh, to submit playful proposals that explore and experiment with MRI technology.
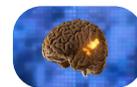
Successful applicant(s) will be invited to share their creative explorations with school students in Bremen during the two-week residency and with the broader public through a digital showcase of their exploration and journey and associated engagement event in Inspace during the 2026 Edinburgh Science Festival.

Selected creatives will be expected to:
- Collaborate with scientists, engineers, physicists and school students to explore and gain understanding of the research of MR sequence development.
- Contribute to an engaging STEAM workshop on their explorations in collaboration with MEVIS scientists for school students in Bremen that demystifies medical imaging for non-specialist audiences.
- Share their explorations using Fraunhofer MEVIS no-field scanner and inspired by tabletop and real MRI scanner tools based on the learning and collaborative work with scientists and students during the Residency.
- Present their exploration throughout the project in an engaging format, using digital media and through an associated event, to diverse audiences, at Inspace, at the Institute for Design Informatics in April 2026, during the Edinburgh Science Festival.

We are looking for creative proposals that:
- Critically engage with these technologies to push the boundaries of accessibility and engagement
- Use digital media to share and visualise their exploration and journey in Inspace (e.g. digital art/illustrations, video film, animation, infographics/data visualizations, creative websites/apps, video games, augmented virtual reality, projected/immersive experiences or other digital formats we've not mentioned)
- Offer new insights into MRI technology and its potential through an associated engagement event in Inspace (e.g. interactive talk, audience engagement activity, workshop, discussion event etc., if wished supported by the MR team to incorporate live image capture via Zoom).

All project outputs should be presented and disseminated in a way that is accessible to a range of audiences, from school students to the general public.

Scope of Funding

For your exploration journey, you will be in close exchange and cooperation with Fraunhofer MEVIS scientists on-site in Bremen, Germany, for two weeks in November 2025 and for six further weeks remotely through scheduled interactions. Tailored to your interests, a mentor and experienced sci-art producer will guide you through the process. The residency aims to support self-driven discussion on and engagement with Fraunhofer MEVIS' R&D, software, and MRI related technology.

Support offered by Design Informatics/Inspace:
- Access to Inspace as a venue and for development and production, which includes seven window facingprojectorplus one main space projector and sound system
- Opportunities to promote your project in Design Informatics newsletter and across our online communications channels
- Access to some equipment (e.g. projectors, 3D printers, display screens, etc.)
- Curatorial and practical support (e.g. Inspace related technical support)
- Space to exhibit a digital visualisation of your exploration and journey in Inspace in April 2026
- Successful applicants will be offered associate membership of IDI for the duration of the programme (Nov 2025 – Apr 2026)

Successful applicant(s) will receive, via the Institute for Design Informatics:
An artist stipend of **5.000 EURO** – this includes all creator/collaborators time for participating in the residency, associated talks/events and delivering the final showcase in Inspace.
This is based on 20 days overall and guided by the Scottish Artists Union new graduate artist residency rate.
A production budget of **4.000 EURO** – administered by Design Informatics and reimbursed through receipts and an expense claim process
**Travel costs** of up to **500 EURO**
Travel subsidy of **450 EURO**
Artwork transportation costs of up to **250 EURO**
Accommodation costs in Bremen, Germany, up to **1050 EURO**

Who Can Apply

We are looking for University of Edinburgh based postgraduate PhD students, studying in design or creative fields to apply. Applicants must be able to demonstrate experience and knowledge of design thinking and methodologies as part of their practice and how they would approach creatively combining design and data in their proposal.
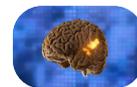
Applicants must be able to demonstrate their capacity to participate in this programme alongside study commitments and must not engage in any other paid contracted University of Edinburgh work for the duration of the residency.

PhD students must also provide written agreement from their supervisor stating that participation in this programme will affect neither their studies, nor their duration. Undergraduate students are unfortunately not eligible to apply.

For a pair of applicants, the lead creative named on the application will be required to submit the application form on behalf of the collaborator and will be the person who attends the two-week on-site part of the residency in Bremen and takes on responsibility for the project budget. The stipend will be split 50:50 between a collaborating pair unless otherwise requested (please note this in your application). The lead applicant must have the ability to travel to Bremen under their current VISA.

All applicants must have a UK address for the duration of the Residency and Science Engagement programme and also have proof of right to work in the UK to be eligible to apply.

Timeline – 2025-2026

Nov 2025 – 2 week visit in Bremen including contributing to a STEAM school workshop jointly with the scientists (if pair – one must be nominated to travel to Bremen and the fee split)
Nov 2025 - Dec 2025 – remote exchange with Fraunhofer MEVIS scientists available (for concept development)
Dec 2025 – Communications deadline - project title, summary and promotional image submission
Jan - Mar 2026 – further, but more limited, remote exchange with Fraunhofer scientists available upon request and for exhibition and event preparation
Jan 2026 – Technical Rider deadline – presentation requirements for digital showcase
Mar 2026 – Installation Rehearsal in Inspace
Apr 2026 – Delivery of digital showcase and associated engagement event in Inspace

Important Note: Please review the dates/timeline requirements for this opportunity and speak with your supervisor to make sure this will work with your studies. The successful applicant (or project lead, if applying as a pair) must be able to travel to Bremen under their current VISA.

Submission Process

Applicants must submit their online application along with emailing the supporting material (portfolio, CV and budget) to designinformatics@ed.ac.uk by Monday 2 **June 2025 at 10.00 GMT.**

Application

Applications in writing are preferred but video recorded submissions with transcript are also accepted if required to support accessibility.
Application offline version (for review purposes): https://edin.ac/4lJ8edW
For your final submission please use the online form only: https://forms.office.com/e/dVejugdRN3
Please contact designinformatics@ed.ac.uk if you require the application form in another format or if you have further access requirements you would like to discuss.

Supporting material

In addition to the online application, applicants must also email to Design Informatics the following supporting material as a single PDF attachment:
Portfolio – (10MB max.) including details of 3 previous projects with text descriptions for each (100 words max.) along with either images (6 max. overall) or for moving-image and sound documentation, please provide links to YouTube, Vimeo or Soundcloud files (10 minutes max. overall).
CV – (2-sided A4 page max.)
Budget – You can access a budget template in Word here: https://edin.ac/42uKcMl. Please contact designinformatics@ed.ac.uk if you require this document in another format.

n.b. The single PDF attachment of your supporting material must be emailed to designinformatics@ed.ac.uk by Monday 2 June 2025 at 10.00 GMT.

Additional material

Access rider (optional) – If there are certain access needs that you would like us to be aware of when connecting and working with you, please feel free to submit an Access Rider. You can find a template in Word here: https://edin.ac/3EDiTpO
Please contact designinformatics@ed.ac.uk if you require this document in another format. See also Access Docs for Artists for more information.

Equality monitoring form (optional) – We also invite all applicants to complete our equality monitoring form, which helps Design Informatics and Inspace to understand the people, regions and communities that are connecting with us and the places and people that are currently missing from our network.

Equality, Diversity and Inclusion: We are committed to equality of opportunity, and we value and promote the diversity of our participants' skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation, and identity. We also seek to locate and amplify under-represented voices and perspectives through our creative programme and work to promote a positive culture, one that celebrates difference, challenges prejudice and ensures fairness and respect.

Selection Process

Your submission will be considered by a panel including members of the Institute for Design Informatics at the University of Edinburgh and the Fraunhofer Institute for Digital Medicine MEVIS:

Matthias Günther – Deputy Institute Director, Head of MR-Imaging, Fraunhofer MEVIS
Bianka Hofmann – Head of Science Engagement, STEAM Imaging Program Lead, Fraunhofer MEVIS
Nicola Osborne – Institute Manager, Design Informatics
Miriam Walsh – Inspace Manager, Design Informatics
Evan Morgan – Research Software Engineer, Design Informatics

When selecting creative proposals, the panel will check eligibility and assess the quality of your submission based on:
• the strength of the vision behind the concept and the proposed engagement with MRI technology through the combination of design thinking and data science
• the creative and playful dimensions of the proposed concept and your capacity to deliver the proposed showcase and engagement activity to broader audiences in Inspace
• the openness to collaborate with scientists to widen existing MRI STEAM workshop activities to be co-delivered to school students
• how proposals demonstrate their interest in STEM topics, capable of bringing the topic of digital medicine to life, and offering new insights or perspectives for audiences
• how the proposal shows that it is realizable within the available budget and timeframe.
The panel will base their decision solely on the submitted material, so it is important that your submission clearly demonstrates the quality and ambition of your vision.

Programme Partners

Fraunhofer MEVIS, programme lead, develops real-world software solutions for image and data-supported early detection, diagnosis, and therapy. Strong focus is placed on cancer, as well as diseases of the circulatory system, brain, breast, liver, and lungs. The goal is to detect diseases earlier and more reliably, tailor treatments to everyone, and make therapeutic success more measurable. To reach its goals, Fraunhofer MEVIS works closely with medical technology and pharmaceutical companies, providing solutions for the entire chain of development, from applied research to product-ready medical device components. Fraunhofer MEVIS, a part of the Fraunhofer Society, has a network of national and international partners from the fields of academia, industry, clinics, and the public sector. The Institute's scientists are committed to raising awareness about how digital medicine and related STEM sciences influence healthcare. Besides their primary mission, they develop experiential projects at the intersection of science, art, and technology to stimulate critical dialog of new technologies, reach new audiences, and foster a diverse R&D landscape.

Institute for Design Informatics and Inspace

Fraunhofer MEVIS reached out to the Institute for Design Informatics (IDI) at the University of Edinburgh, where data science is combined with design thinking in a context of critical inquiry and speculation. The central premise of design informatics – that data is a medium for design, and by shaping data, the world around us is shaped – is particularly true for the field of digital medicine.

With a motto – design for, with and by data – this reflects how Design Informatics looks at design and data from different perspectives: designing research products, prototypes and experiences that are underpinned by data and enable new data interactions; creating new methods and techniques that use data in design processes in innovative ways; and looking at the agency, autonomy and power of data in how systems are designed and the world is experienced.

Inspace is run by the Institute for Design Informatics based at the School of Informatics and Edinburgh College of Art at the University of Edinburgh and its programme aims to unlock digital technologies, tools and data and explore their role in society through a creative lens.

Oberschule am Waller Ring

Fraunhofer MEVIS' partnership with Oberschule am Waller Ring, a school with a focus on health topics, aims to foster multidisciplinary talents and encourage students to explore science, technology, design and art; they collaborate together to rethink education in the context of digital transformation in healthcare and cross-disciplinary learning. STEAM workshops enhance students' understanding of digital medicine by offering diverse perspectives. Fraunhofer MEVIS seeks to inspire high school graduates in Bremen's Walle district—an area with socio-economic challenges and a high immigrant population—by promoting STEM subjects and educational equality. Fraunhofer MEVIS has a history of co-creating STEAM workshops with this school and diverse creators, blending artistic and scientific approaches to engage students with new technology and complex health issues.

Ars Electronica

Analyzing and commenting on the Digital Revolution for decades, developing strategies and competencies for Digital Transformation, Ars Electronica addresses central questions of our future jointly with artists, scientists, technologists, designers, developers, entrepreneurs, and activists worldwide. The focus is on new technologies and how they change how we live and work together. Ars Electronica has been cooperating with STEAM Imaging on different levels since 2017. They support transferring technological knowledge and learning through art and foster strategies to diversify STEM and technological developments.

FAQ's

What Are MRI Sequences? MRI sequences are carefully designed protocols that determine how the scanner collects data. Data science plays a crucial role in improving these sequences, e.g. through machine learning for sequence optimization, using AI-driven methods that enhance image parameters for better quality and faster scans. Deep learning models can help accelerate scans while maintaining diagnostic quality. Real-time data analysis allows MRI sequences to adjust dynamically based on patient-specific characteristics.

What does MRI data look like? Before reconstruction, MRI data is stored in k-space, a matrix of complex numbers representing spatial frequencies. These data are not directly interpretable as an image but forms the foundation for reconstructing an MRI scan. It often looks like a symmetrical or structured pattern of bright and dark spots. After applying Fourier transformation, the data are converted into grayscale images. These images resemble medical scans with varying shades of gray depending on tissue properties. Some MR techniques generate parameter maps, such as perfusion maps, diffusion maps, or functional MRI (fMRI) activity maps, which may be color-coded to indicate different physiological or biochemical properties. In fMRI or dynamic imaging, MR data are stored as a time-series of images, showing changes in signal intensity over time.

Do I Need to Know about MR Physics? No!

Do I Have to be a PhD Student Working Alone or Can I Work in a Pair or a Group? You can work alone or with one other student in collaboration – we don't recommend larger group responses. However, please note that the travel costs only cover one applicant visit to Bremen, and you would need to reach agreement on who would directly participate in the Bremen-based activities.

Do I have to be a PhD student in Design Informatics?
No. While you, and the potential collaborator if applying as a pair need to be University of Edinburgh PhD students, we are keen to receive proposals from creative students from any discipline that are interested in broadly exploring and combining design and data.

What is gammaSTAR? gammaSTAR, developed by Fraunhofer MEVIS, is a vendor-independent MRI sequence development framework that allows real-time configuration and adjustments directly at the scanner. It simplifies development through modular design for quick testing and iteration. Its compatibility with various MRI devices reduces hardware costs, simplifies multi-center studies, and enhances efficiency. The framework supports AI-driven sequence optimization, and future AI integration will automate sequence creation, enabling faster development and personalised medicine applications.

Do I need to know how to program? No! However, if you are interested in what technologies the gammaSTAR framework does use for sequence development, application, and frontend development: The gammaSTAR framework currently uses Python and Lua for sequence development and application and Angular, an open-source web application framework developed and maintained by Google, for frontend development. Are there any other programming languages that can be utilised? Since gammaSTAR sequences and building blocks are data structures, other programming languages, such as JavaScrpt, can be utilised, as well.
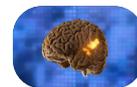
Who is the Fraunhofer Society? The Fraunhofer Society (Fraunhofer-Gesellschaft) is a leading German research organization focused on applied research and technology development. It collaborates closely with industry to turn scientific findings into practical solutions, driving innovation in fields like healthcare, materials science, AI, and renewable energy. With over 70 institutes, it plays a crucial role in advancing technology and improving industries worldwide.

What kinds of costs can be included in the production budget? The production budget should cover all costs and fees associated with the delivery of the STEAM workshop and the exhibited digital visualisation of your exploration and journey and the associated event both in Inspace. This can include for example; materials and supplies costs, production costs, technical costs, software costs, freelancer fees, additional creative fees and other costs. This is not an exhaustive list so please adapt the budget template provided with this call as may be required for your project.

Links to More Information about MR Sequence Development
- News: The MR scanner as a tabletop device
- Audio Podcast: Breaking New Ground in MRI Imaging: Simplifying Access with Innovative Tech
- Workshop: MRI measurements on a desk
- Paper: AI-driven and automated MRI sequence optimization in scanner-independent MRI sequences formulated by a domain-specific language

Links to More Information about STEM+/ STEAM @Fraunhofer MEVIS
- R&D Engagement and Science Communication
- Hofmann, Bianka. (2019). Linking Science and Technology with Arts and the Next Generation—The Experimental Artist Residency "STEAM Imaging". Leonardo. 54. 1-10. 10.1162/leon_a_01792.
- Ars Electronica Center Linz, The Practice of Art & Science, The European Digital Art and Science Network (Hatje Cantz, 2017), pp. 50–55.
- Brief overview talk "Making Sense: Purpose and Impact Integrating Science, Art, and Technology – Insights and Examples from an Applied Science Research Institution"

Links to More Information about the Partners
- Fraunhofer Institute for Digital Medicine MEVIS, DE
- International Fraunhofer Talent School Bremen: STEAM Imaging, DE
- Institute for Design Informatics , University of Edinburgh, UK
- Inspace, Institute for Design Informatics, University of Edinburgh, UK
- News: Today's School for Tomorrow's Healthcare
- Oberschule am Waller Ring, DE
- Ars Electronica, AT

"Linking science, technology, and art holds great potential for addressing our social, environmental and economic challenges in Europe. STEAM Imaging is a program that has been unleashing this power for years, creating an international lighthouse project focused on knowledge transfer and learning through art. We need more programs like this!"
Veronika Liebl, Managing Director Festival Prix Exhibitions, Ars Electronica