

Research Associate (Neuroimaging / Cognitive-clinical neuroscience)
School of Psychology – Closing Date: 24th May 2026

We are seeking to appoint a highly-motivated Research Associate, to join our interdisciplinary team developing open-source, low-field MRI technology for neuroscience research in low- and middle-income country (LMIC) settings. Within this Wellcome Trust funded project with 23 collaborators from 14 sites across the world and a wider group of stakeholders, you will lead the development of advanced MRI acquisition methods for our portable, ultra-low-field MRI platform. This includes implementing MR Fingerprinting (MRF), developing multi-shell diffusion sequences in Pulseq, investigating diffusion-weighted EPI at low field, and comparing the performance of FSE, EPI, and SSFP sequences. You will contribute to open-source sequence development, documentation, and testing as part of a global, collaborative effort to democratise access to MRI technology. This role offers a rare opportunity to shape the next generation of accessible MRI systems and influence global neuroscience research capacity.

We'd like to hear from you if you:

- Are an enthusiastic and ambitious researcher with expertise in sequence programming, ideally in diffusion MRI, and a strong interest in advancing neuroimaging technology for global health;
- Are excited to contribute to a highly collaborative, international project developing open-source low-field MRI systems for neuroscience research;
- Have research experience in open sequence programming platform such as pulseq.

For informal enquiries please contact Professor Mara Cercignani,
CercignaniM@cardiff.ac.uk .

You will work at the vibrant and diverse Cardiff University Brain Research Imaging Centre (CUBRIC); a multidisciplinary environment, housing physicists, engineers, neuroscientists, psychologists and clinicians.

This post is full-time (35 hours per week), is fixed term for 27 months and is available from 1st September 2026.

Salary: £41,064 - £46,049 per annum (Grade 6). Appointments to roles at Cardiff University are usually made at bottom of scale unless in exceptional circumstances.

Cardiff University offers many excellent benefits, including 45 days annual leave (incl. bank holidays), local pension scheme, a cycle to work scheme and other travel initiatives, annual increments within the pay scale, and more. It's an exciting and vibrant place to work with many different challenges and is a proud Living Wage supporter.

Cardiff University is committed to supporting and promoting equality and diversity and to creating an inclusive working environment. We believe this can be achieved through attracting, developing, and retaining a diverse range of staff from many different backgrounds. We therefore welcome applicants from all sections of the community regardless of sex, ethnicity, disability, sexual orientation, trans identity, relationship status, religion or belief, caring responsibilities, or age. In supporting our employees to achieve a balance between their work and their personal lives, we will also consider proposals for flexible working or job share arrangements.

Cardiff University is a signatory to the San Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions we will evaluate applicants on the quality of their research, not publication metrics or the identity of the journal in which the research is published. More information is available at: [Responsible research assessment - Research - Cardiff University](#)

Applications may be submitted in Welsh, and an application submitted in Welsh will not be treated less favourably than an application submitted in English.

Job Description

To conduct research within MRI Image Acquisition and Low-Field MRI area and contribute to the overall research performance of the School and University, carrying out research leading to the publishing of high-quality research. To pursue excellence in research and to inspire others to do the same. You will have access to state-of-the-art computer infrastructure and high-field MRI scanners to use as reference during development. You will also have free access to over 350 Doctoral Academy training courses to develop yourself professionally and personally. You will attend seminars/journal clubs at CUBRIC, national/international conferences, and take part in on-site visits to collaborating three African and one European sites.

Main Duties and Responsibilities

Research

- To conduct research within MRI Image Acquisition and Low-Field MRI and contribute to the overall research performance of the School and University by carrying out research leading to timely production of measurable outputs

including publishing of high-quality research in academic journals and conferences, supervision of students and bidding for funding.

- To develop research objectives and proposals for own or joint research including research funding proposals
- To attend and or present at conferences/seminars at a local and national level as required
- To undertake administrative tasks associated with the research project, including the planning and organisation of the project and the implementation of procedures required to ensure accurate and timely reporting
- To prepare research ethics and research governance applications as appropriate
- To review and synthesise existing research literature within the field
- To participate in School research activities.
- To build and create networks both internally and externally to the university, to influence decisions, explore future research requirements, and share research ideas for the benefit of research projects

Specific Duties

- Develop and implement image acquisition methods for diffusion MRI at low-field.
- Implement and optimise MR Fingerprinting (MRF) protocols for T1, T2, and diffusion estimation at ultra-low field strength.
- Develop and benchmark multi-shell diffusion imaging protocols using Pulseseq, including gradient waveform optimisation and timing constraints specific to low-field hardware.
- Investigate diffusion-weighted EPI feasibility at low field.
- Conduct systematic comparisons of FSE, EPI, and SSFP for diffusion acquisition in terms of SNR, artefacts, and reproducibility.
- Work closely with hardware engineers and reconstruction scientists to integrate acquisition and reconstruction pipelines end-to-end.
- Contribute to publications in a timely manner, present findings at international conferences, and engage with global research partners.
- Collaborate with interdisciplinary teams to integrate sequences and reconstruction methods into our portable MRI systems.

- Support junior researchers and students, and contribute to the team's open-source software and documentation.

Other

- To engage effectively with industrial, commercial and public sector organisations, professional institutions, other academic institutions etc., regionally and nationally to raise awareness of the School's profile, to cultivate strategically valuable alliances, and to pursue opportunities for collaboration across a range of activities. These activities are expected to contribute to the School and the enhancement of its regional and national profile.
- To undergo personal and professional development that is appropriate to and which will enhance performance.
- To participate in School administration and activities to promote the School and its work to the wider University and the outside world
- Any other duties not included above, but consistent with the role.

Person Specification

IMPORTANT NOTE TO CANDIDATES: It is the University's policy to use the person specification as a key tool for short-listing and we only invite candidates to interview who clearly evidence that they meet (or partially meet) each of the essential criteria. During the application process you will be asked to attach a supporting statement. This statement must outline how you meet the criteria below and we recommended formatting this by using each criteria as a sub-heading and providing your relevant experience/evidence below each sub-heading. It is crucial that you save your supporting statement with the vacancy number (eg. 1234BR) in the filename as failure to do so may result in it being omitted from your application.

Essential Criteria

Qualifications and Education

1. Postgraduate degree at PhD level (or nearing completion / submission) or relevant industrial experience in a related subject area: computer science, electrical engineering, medical physics, mathematics, or physics.

Knowledge, Skills and Experience

2. An established expertise and proven portfolio of research and/or relevant industrial experience within the following:

1.

1. Developing or modifying MRI pulse sequences (Siemens IDEA, GE EPIC, Philips RFP, Pulseq, or similar)

3. Understanding of diffusion MRI physics, including acquisition techniques
4. Proficiency in scientific programming (e.g., Python, MATLAB, C++) and debugging.
5. Proven ability to publish in international journals and conferences, and other research outputs
6. Knowledge and understanding of competitive research funding to be able to develop applications to funding bodies

Communication and Team Working

7. Proven ability in effective and persuasive communication
8. Ability to supervise the work of others to focus team efforts and motivate individuals

Other

9. Proven ability to demonstrate creativity, innovation and team-working within work
10. Proven ability to work without close supervision

Desirable Criteria

11. Experience with quantitative MRI methods (e.g., MRF, relaxometry, or model-based reconstruction)
12. Experience with low-field, portable, or non-conventional MRI systems
13. Experience with Pulseq or another open-source sequence framework
14. Experience working in open-source projects or collaborative coding environments (GitHub)
15. Proven ability to adapt to the changing requirements of the Higher Education community.
16. Evidence of ability to participate in and develop both internal and external networks and utilise them to enhance the research activities of the School.

Cydymaith Ymchwil (Niwrddelweddu/Nirowyddoniaeth wybyddol a chlinigol) Yr Ysgol Seicoleg

Rydym ni'n awyddus i benodi Cydymaith Ymchwil â chymhelliant uchel i ymuno â thîm rhyngddisgyblaethol sy'n datblygu technoleg MRI maes isel, ffynhonnell agored ar gyfer ymchwil nirowyddoniaeth mewn lleoliadau mewn gwledydd incwm isel a chanolig. O fewn y prosiect hwn a ariennir gan Ymddiriedolaeth Wellcome gyda 23 o gydweithwyr o 14 safle ledled y byd a grŵp ehangach o randdeiliaid, byddwch yn arwain y gwaith o ddatblygu dulliau caffael MRI datblygedig ar gyfer ein platfform MRI cludadwy, maes isel iawn. Mae hyn yn cynnwys gweithredu protocolau patrymau cyseiniant magnetig (MRF), datblygu dilyniannau trylediad aml-gragen yn Pulseq, ymchwilio i EPI wedi'i bwysoli yn ôl trylediad mewn system maes isel, a chymharu perfformiad dilyniannau FSE, EPI, a SSFP. Byddwch yn cyfrannu at ddatblygu, dogfennu a phrofi dilyniannau ffynhonnell agored fel rhan o ymdrech fyd-eang, gydweithredol i ddemocrateiddio mynediad at dechnoleg MRI. Mae'r rôl hon yn cynnig cyfle prin i lunio'r genhedlaeth nesaf o systemau MRI hygyrch a dylanwadu ar allu ymchwil nirowyddoniaeth fyd-eang.

Hoffem glywed gennych os ydych yn:

- Ymchwilydd brwdfrydig ac uchelgeisiol ag arbenigedd mewn rhaglennu dilyniannau, yng nghyd-destun MRI trylediad yn ddelfrydol, a diddordeb cryf mewn datblygu technoleg niwrddelweddu ar gyfer iechyd byd-eang;
- Eiddgar i gyfrannu at brosiect rhyngwladol hynod gydweithredol sy'n datblygu systemau MRI maes isel ffynhonnell agored ar gyfer ymchwil nirowyddoniaeth;
- Meddu ar brofiad ymchwil gyda phlatfform rhaglennu dilyniannau agored fel pulseq.

Ar gyfer ymholiadau anffurfiol, cysylltwch â'r Athro Mara Cercignani, CercignaniM@caerdydd.ac.uk.

Byddwch yn gweithio yng Nghanolfan Delweddu Ymchwil yr Ymennydd Prifysgol Caerdydd (CUBRIC) sy'n fywiog ac amrywiol ac yn amgylchedd amlddisgyblaethol sy'n cynnwys ffisegwyr, peirianwyr, nirowyddonwyr, seicolegwyr a chlinigwyr.

Mae hon yn swydd amser llawn (35 awr yr wythnos), am gyfnod penodol o 27 mis, ac mae ar gael o 1 Medi 2026.

Cyflog: £41,064 hyd at £46,049 y flwyddyn (Graddfa 6). Ym Mhrifysgol Caerdydd, mae unigolion fel arfer yn dechrau ar waelod y raddfa gyflog, ac eithrio mewn amgylchiadau eithriadol

Mae Prifysgol Caerdydd yn cynnig pecyn buddion gwych, gan gynnwys 45 diwrnod o wyliau blynyddol (gan gynnwys Gwyliau Banc), cynllun pensiwn lleol, cynllun beicio i'r gwaith a chynlluniau teithio eraill, cynyddrannau blynyddol ar hyd y raddfa gyflog, a mwy. Mae'n lle cyffrous a bywiog i weithio, gyda nifer o heriau gwahanol. Rydym hefyd yn falch o gefnogi'r Cyflog Byw.

Mae Prifysgol Caerdydd wedi ymrwymo i gefnogi a hyrwyddo cydraddoldeb ac amrywiaeth a chreu gweithle cynhwysol. Rydym o'r farn bod modd gwneud hyn drwy ddenu, datblygu a chadw ystod amrywiol o bobl o lawer o gefndiroedd gwahanol. Felly, rydym yn croesawu ceisiadau gan bobl o bob rhan o'r gymuned, beth bynnag y bo'u rhyw, eu hethnigrwydd, eu hanabledd, eu cyfeiriadedd rhywiol, eu hunaniaeth draws, statws eu perthynas, eu crefydd neu eu cred, eu cyfrifoldebau gofalu neu eu hoedran. Er mwyn helpu ein cyflogeion i sicrhau cydbwysedd rhwng eu gwaith a'u bywydau personol, byddwn hefyd yn ystyried cynigion i weithio'n hyblyg neu rannu'r swydd.

Mae Prifysgol Caerdydd wedi llofnodi Datganiad San Francisco ar Asesu Ymchwil (DORA), sy'n golygu y byddwn, wrth wneud penderfyniadau cyflogi a dyrchafu, yn gwerthuso ymgeiswyr ar sail safon eu hymchwil, ac nid ar sail metrigau cyhoeddi na'r cyfnodolyn y mae'r ymchwil wedi'i chyhoeddi ynddo. Mae rhagor o wybodaeth ar gael yma: [Asesu ymchwil yn gyfrifol – Ymchwil – Prifysgol Caerdydd](#)

Gellir cyflwyno ceisiadau yn Gymraeg, ac ni chaiff cais a gyflwynir yn Gymraeg ei drin yn llai ffafriol na chais a gyflwynir yn Saesneg.

Disgrifiad Swydd

Cynnal gwaith ymchwil ym maes Caffael Delweddau MRI ac MRI Maes Isel a chyfrannu at berfformiad ymchwil cyffredinol yr Ysgol a'r Brifysgol, gan gynnal gwaith ymchwil fydd yn arwain at gyhoeddi gwaith ymchwil o safon uchel. Dilyn rhagoriaeth mewn ymchwil ac ysbrydoli eraill i wneud yr un fath. Cewch fanteisio ar seilwaith cyfrifiadurol o'r radd flaenaf a sganwyr MRI maes uchel i gyfeirio atynt yn ystod gwaith datblygu. Bydd gennych hefyd fynediad am ddim at dros 350 o gyrsiau hyfforddi'r Academi Ddoethurol i'ch datblygu eich hun yn broffesiynol ac yn bersonol. Byddwch yn mynychu seminarau/clybiau cyfnodolion yn CUBRIC, cynadleddau cenedlaethol/rhyngwladol, ac yn cymryd rhan mewn ymweliadau ar dri safle cydweithio yn Affrica ac un yn Ewrop

Prif Ddyletswyddau a Chyfrifoldebau

Ymchwil

- Cyflawni gwaith ymchwil ym maes Caffael Delweddau MRI ac MRI Maes Isel, a chyfrannu at berfformiad ymchwil cyffredinol yr Ysgol a'r Brifysgol drwy wneud ymchwil sy'n arwain at gynhyrchu allbwn mesuradwy yn amserol, gan gynnwys cyhoeddi ymchwil ansawdd uchel mewn cyfnodolion academaidd a chynadleddau, goruchwyllo myfyrwyr ac ymgeisio am gyllid.
- Datblygu amcanion ymchwil a chynigion ar gyfer prosiectau ymchwil annibynnol neu ar y cyd, gan gynnwys ceisiadau am gyllid.
- Mynd i gynadleddau/seminarau lleol a chenedlaethol a/neu roi cyflwyniadau ynddynt yn ôl y gofyn
- Cyflawni tasgau gweinyddol sy'n gysylltiedig â'r prosiect ymchwil, gan gynnwys cynllunio a threfnu'r prosiect a rhoi'r gweithdrefnau sydd eu hangen ar waith i sicrhau bod adroddiadau cywir yn cael eu cyflwyno'n brydlon.
- Paratoi ceisiadau moeseg ymchwil a llywodraethu ymchwil fel y bo'n briodol
- Adolygu a chyfuno llenyddiaeth ymchwil gyfredol yn y maes
- Cymryd rhan yng ngweithgareddau ymchwil yr Ysgol
- Datblygu a chreu rhwydweithiau yn fewnol yn y Brifysgol a'r tu allan iddi, dylanwadu ar benderfyniadau, archwilio gofynion ymchwil y dyfodol, a rhannu syniadau ymchwil er budd prosiectau ymchwil

Dyletswyddau Penodol

- Datblygu a gweithredu dulliau caffael delweddau ar gyfer MRI trylediad maes isel.
- Gweithredu ac optimeiddio protocolau patrymau cyseiniant magnetig (MRF) ar gyfer T1, T2, ac amcangyfrif trylediad ar gryfder maes isel iawn.
- Datblygu a meincnodi protocolau delweddu trylediad aml-gragen gan ddefnyddio Pulseq, gan gynnwys optimeiddio tonffurf graddiant a chyfyngiadau amseru sy'n benodol i galedwedd maes isel
- Ymchwilio i ddichonoldeb EPI wedi'i bwysoli yn ôl trylediad mewn maes isel
- Cynnal cymariaethau systematig o FSE, EPI, a SSFP ar gyfer caffael trylediad o ran SNR, arteffactau, ac atgynrchadwyedd.
- Gweithio'n agos gyda pheirianwyr caledwedd a gwyddonwyr ailadeiladu i integreiddio gwaith caffael a ffrydiau ailadeiladu o'r dechrau i'r diwedd.
- Cyfrannu at gyhoeddiadau mewn modd amserol, cyflwyno canfyddiadau mewn cynadleddau rhyngwladol, ac ymgysylltu â phartneriaid ymchwil byd-eang

- Cydweithio â thimau rhyngddisgyblaethol i integreiddio dilyniannau a dulliau ail-greu i'n systemau MRI cludadwy.
- Cefnogi ymchwilwyr a myfyrwyr iau, a chyfrannu at feddalwedd a dogfennaeth ffynhonnell agored y tîm

Arall

- Ymgysylltu'n effeithiol â chyrrff diwydiannol, masnachol a chyhoeddus, sefydliadau proffesiynol, sefydliadau academaidd eraill ac ati, a hynny'n rhanbarthol ac yn genedlaethol, i godi proffil yr Ysgol, meithrin partneriaethau strategol gwerthfawr a chwilio am gyfleoedd i gydweithio ar amrywiaeth o weithgareddau. Bydd disgwyl i'r gweithgareddau hyn gyfrannu at waith yr Ysgol a gwella ei phroffil rhanbarthol a chenedlaethol.
- Datblygu'n bersonol ac yn broffesiynol mewn modd priodol a fydd yn gwella perfformiad.
- Cymryd rhan yng ngweinyddiaeth yr Ysgol a gweithgareddau i hyrwyddo'r Ysgol a'i gwaith ledled y Brifysgol a thu hwnt.
- Cyflawni unrhyw ddyletswyddau eraill nad ydynt wedi'u nodi uchod ond sy'n cydfynd â gofynion y swydd

Manyleb Unigolyn

NODYN PWYSIG I YMGEISWYR: Polisi'r Brifysgol yw defnyddio manyleb yr unigolyn yn adnodd allweddol i lunio'r rhestr fer, a dim ond yr ymgeiswyr hynny sy'n dangos yn glir eu bod yn bodloni (neu'n rhannol fodloni) pob un o'r meini prawf hanfodol a gaiff eu gwahodd i gyfweiliad. Yn ystod y broses ymgeisio, gofynnir i chi atodi datganiad ategol. Rhaid i'r datganiad hwn amlinellu sut rydych yn bodloni'r meini prawf isod ac rydym yn argymhell ei fformatio drwy ddefnyddio pob maen prawf yn is-bennawd a nodi eich profiad/tystiolaeth berthnasol o dan bob is-bennawd. Mae'n hollbwysig eich bod yn nodi rhif y swydd wag (e.e. 1234BR) yn rhan o enw'r ffeil wrth gadw eich datganiad ategol gan ei bod yn bosibl bod methu â gwneud hynny yn arwain at ei hepgor o'ch cais

Meini Prawf Hanfodol

Cymwysterau ac Addysg

1. Gradd ôl-raddedig ar lefel PhD (neu'n agos at gwblhau / cyflwyno) neu brofiad diwydiannol perthnasol mewn maes pwnc cysylltiedig: cyfrifiadureg, peirianeg drydanol, ffiseg feddygol, mathemateg, neu ffiseg.

Gwybodaeth, Sgiliau a Phrofiad

2. Arbenigedd a phortffolio diamheuol o waith ymchwil a/neu brofiad diwydiannol perthnasol yn y meysydd a ganlyn:

1.

1. Datblygu neu addasu dilyniannau pwls MRI (Siemens IDEA, GE EPIC, Philips RFP, Pulseq, neu debyg)

3. Dealltwriaeth o ffiseg MRI trylediad, gan gynnwys technegau caffael

4. Hyfedredd mewn rhaglennu gwyddonol (e.e., Python, MATLAB, C++) a dadfygio.

5. Gallu diamheuol i gyhoeddi mewn cyfnodolion a chynadleddau rhyngwladol ac allbynnau ymchwil eraill

6. Gwybodaeth a dealltwriaeth o gyllid ymchwil cystadleuol er mwyn gallu datblygu ceisiadau i gyrff cyllido

Cyfathrebu a Gweithio'n Rhan o Dîm

7. Gallu diamheuol i gyfathrebu'n effeithiol ac yn argyhoeddiadol

8. Gallu goruchwyllo gwaith pobl eraill i roi canolbwynt i waith y tîm ac ysgogi unigolion

Arall

9. Gallu diamheuol i fod yn greadigol ac yn arloesol a gweithio'n rhan o dîm yn y gwaith

10. Gallu diamheuol i weithio heb oruchwyliaeth agos

Meini Prawf Dymunol

11. Profiad gyda dulliau MRI meintiol (e.e. MRF, ymlaciometreg, neu ailadeiladu sy'n seiliedig ar fodolau)

12. Profiad gyda systemau MRI maes isel, cludadwy neu anghonfensiynol.

13. Profiad gyda Pulseq neu fframwaith dilyniant ffynhonnell agored arall

14. Profiad o weithio mewn prosiectau ffynhonnell agored neu amgylcheddau codio cydweithredol (GitHub)

15. Gallu diamheuol i addasu i ofynion newidiol y byd addysg uwch

16. Tystiolaeth o'r gallu i gyfrannu at rwydweithiau mewnol ac allanol, eu datblygu a'u defnyddio er mwyn gwella gweithgareddau ymchwil yr Ysgol.