UKRI AI Centre for Doctoral Training in Citizen-Centred AI (CCAI)

PhD Research Proposal Form

Please complete this form and upload it to your online application before submitting your application.

- Do not go over the stated word limits.
- Do not submit proposals in any other format unless this has been agreed with a member of staff
- Complete all sections

Advert/Studentship Reference number	CDTAI26

1. Working Title – 15 words

This should be tightly focused on the research you are proposing to undertake

Me, Myself and AI – When the Face becomes Data
Recognition, Identity & Facial Differences in FRT

2. Introduction and research significance/research motivation - 250 words

Why the topic is important to the design, development and evaluation of AI technologies and their impacts on society? What do we already know? What we don't know?

As AI systems are increasingly used to verify identity and mediate access to services, they have become powerful sites of recognition and misrecognition. These systems do not merely process data; they shape how individuals are seen by society and themselves, and as identity is partly constituted through recognition, misrecognition can inflict real harm.[1] This research is motivated by the growing use of AI in identity verification, including FRT in public services. Although often framed as neutral or technical, such systems embed assumptions about what constitutes a legitimate or recognisable identity. For individuals with facial differences, these assumptions can result in exclusion from digital systems that are increasingly essential for social participation. Such exclusions are not merely technical failures but operate as discriminatory harms with material and psychological consequences.[2]

For people with facial differences, AI risks reproducing long-standing patterns of exclusion through automated misrepresentation as highlighted in a recent survey which recorded difficulties with all aspects of FRT including formal identification such as border control 'e gates.'[3] Limited research examines how AI identity systems engage with facial difference as an identity category, users experience, or how citizen-centred approaches might support recognition of facial disfigurement. Recent correspondence with central government regarding accessibility and facial recognition technologies has further underscored the urgency and policy relevance of this issue, particularly as AI-enabled identity systems are being rapidly developed and deployed.[4] Addressing this gap, with a community led approach, is essential to ensuring that AI-mediated identity infrastructures enhance, rather than undermine, dignity, inclusion, and participation.

3. Concise Critical Reflection on the Existing Literature – 500 words

What existing research is out there that is relevant to your proposed research? Why is it relevant? And how will your proposed research build on it/extend on it?

Existing research relevant to this project spans identity theory, human rights law, disability studies, and human–computer interaction, collectively demonstrating that identity is not a neutral or technical attribute but a socially constructed and institutionally mediated phenomenon.

Foundational identity theorists emphasise recognition as central to personhood. Taylor conceptualises identity as partly constituted through recognition, arguing that misrecognition can inflict harm by distorting how individuals are understood.[5] Honneth further argues that self-confidence, self-respect, and self-esteem depend upon intersubjective recognition.[6] Together, these accounts establish recognition as a prerequisite for identity formation and social participation, providing a theoretical foundation for understanding why failures of recognition in AI systems matter beyond technical error.

Legal scholarship extends these insights into questions of state responsibility. Marshall argues that where the state projects, or permits the projection of, inferior or demeaning images, denial of recognition may amount to oppression[7], while Hamilton describes personhood as circulation within legal and social frameworks of legitimation.[8] Through a socio-political model of disability, this scholarship reveals how citizen-facing AI identity systems authorised by the state create barriers by determining whose bodies are legible, valuable, and governable, shaping both access to services and recognised social status.[9] Equality studies further illuminate how exclusion operates through social attitudes rather than individual impairment: Barnes traces historically shifting criteria for inclusion[10], while Saunders highlights how responses to facial difference can themselves be disabling.[11] Widdows describes a 'rising bar of acceptable appearance' in contemporary society, partially fueled by computer-generated images that distort perceptions of what is normal.[12] Taken together, this reframes exclusion from AI systems not as a failure of access, but as the operationalisation of normative judgments about acceptable bodies and identities, with AI acting as an additional lens through which appearance is defined and legitimised.

Research demonstrates how such exclusions emerge during AI design, shaped by worker positionality, technical constraints, and commercial priorities.[13] This work shows how certain identities are treated as untenable due to their resistance to simplification, leading to exclusion long before deployment. In the context of facial difference, historical analyses documenting "unofficial censorship" demonstrates how facial difference has often been managed through concealment, omission, and collective turning away rather than explicit prohibition.[14] This is directly relevant to AI systems, where exclusion may occur through absence from datasets, design imaginaries, or recognition processes rather than overt discrimination, yet this still perpetuates social stigma and shame.

Despite extensive scholarship on algorithmic bias, fairness, and accessibility, limited research examines how AI identity systems engage with facial difference as an identity category, how misrecognition operates as a form of exclusion, or how affected users experience these systems, despite people with facial differences being among those most likely to encounter failure. This project addresses that gap by integrating

community-led research, recognition theory, legal analysis, and design research to examine AI-mediated identity verification as a site of recognition, exclusion, and citizenship, grounded in a citizen-centred, socio-political understanding of disability and AI governance.

4. What CCAI research theme(s) does your proposed research align to

Research themes can be found here: https://www.northumbria.ac.uk/about-us/academic-departments/computer-and-information-sciences/citizen-centred-artificial-intelligence/

Identities, Security and Society

5. Research Questions Based on the Research significance/Research motivation & Literature Review - 200 words

1. How do AI-mediated identity verification systems shape recognition, misrecognition, and exclusion for people with facial differences, and what are the implications for dignity, discrimination, and citizenship in digital public services?
2. How are assumptions about "recognisable" or "legitimate" identity constructed within the design, deployment, and governance of AI identity systems?
3. In what ways do AI identity systems reproduce or intensify historical patterns of exclusion and unofficial censorship experienced by people with facial differences?
4. How does misrecognition by state-enabled AI systems function as a form of discrimination when responsibility is distributed across sociotechnical infrastructures?
5. How do individuals with facial differences experience and interpret AI-mediated misrecognition in relation to identity, belonging, and civic participation?
6. How might citizen-centred and participatory approaches to AI design and governance, co-developed with affected communities, enable identity systems to recognise multiple valid perspectives on identity rather than imposing homogeneous norms?

6. Research objectives – 100 words - Indicative three objectives

1. Analyse how AI identity systems encode assumptions about facial normativity, examining how systems construct and operationalise recognition, with particular attention to the assumptions embedded about what constitutes a "recognisable" identity.
2. Examine lived experiences of facially different citizens interacting with AI identity systems and how such experiences shape identity and access to digital public services.
3. Develop citizen-centred governance recommendations, principles or frameworks for AI identity systems that enable recognition of multiple valid perspectives on identity and support dignity, inclusion, and democratic participation.

7a. Research Methods – 400 words
data collection methods/tools, sampling & data analysis approach

Research Design
The project employs a multi-method qualitative research design integrating participatory activities, qualitative inquiry, doctrinal legal analysis, and policy and system analysis. Together, these methods reflect the project's core premise that identity, recognition, and discrimination in FRT are not solely technical phenomena, but are produced through legal, political, and social arrangements that are experienced and contested in everyday life.

1. Participatory Activities
Participatory methods form the foundation of the research. The project explores the use of digital tools, such as structured digital diaries, through which participants document interactions with FRT over time. These entries are collated to support participant-led sense-making[15], enabling individuals and advocacy groups to identify shared patterns of misrecognition, exclusion, and harm. By enabling reflection across time, the research recognises that the articulation of harm and exclusion is often non-linear and emergent. Optional audio-based reflective practices may also be used to support agency and collective articulation.[16] The research aims to create carefully mediated spaces for collaboration between advocacy groups, public sector actors, and policymakers involved in the design, deployment, or oversight of citizen-facing AI systems. Through facilitated roundtable discussions, participant-generated accounts of lived experience are brought into dialogue with institutional and technical perspectives. The aim is mutual intelligibility, enabling lived experience to meaningfully inform evaluative frameworks, governance practices, and policy responses to FRT.

2. Qualitative Interviews and Participatory Workshops
Semi-structured interviews will be conducted as participatory inquiry spaces. Participants will contribute accounts of lived experience, and their own interpretations of misrecognition, harm, and system failure. These interviews will inform participatory workshops that support participants to move from individual experience toward shared articulation of priorities, evaluation criteria, and pathways for change.

3. Doctrinal Legal Analysis
The project includes doctrinal legal analysis of relevant equality, human rights, and governance frameworks, including the Equality Act 2010, PSED, and emerging AI governance and digital identity frameworks. This analysis examines how existing legal frameworks conceptualise identity, recognition, and discrimination, and where gaps emerge when these frameworks are applied to FRT.

4. Policy and System Analysis
Policy and system analysis will examine AI identity infrastructures deployed in public services, with a focused case study of GOV.UK One Login. This analysis explores how identity is framed within system design and policy documentation, the assumptions embedded and how responsibility for misrecognition or exclusion is distributed across institutions, vendors, and governance structures. This study enables examination of how principles of inclusion are translated into operational systems with real-world consequences.

7b. Citizen-Centred Approach - 200 words

How will you work with citizens to ensure that the research is taking a Citizen-Centred approach to AI.

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society

Citizens will be involved from the early stages of problem definition and research design, rather than only at the point of data collection, ensuring that research questions, methods, and outputs reflect community priorities. This project adopts a citizen-centred approach by engaging those most affected by AI-mediated identity systems as knowledge-holders and co-producers within the research process. In this context, "citizens" include people with facial differences, alongside relevant civil society organisations and institutional actors involved in the design, deployment, or governance of identity technologies.

Central to the research is collaboration with people with facial differences, whose lived experiences of misrecognition provide critical insight into how identity systems operate in practice. Participatory activities support reflection, collective sense-making, and the articulation of how these technologies shape recognition, dignity, and access. By redistributing interpretive authority, the research ensures that those most affected by exclusion actively shape analysis, evaluation criteria, and proposed pathways for change.

Engagement with public-sector, policy, and design stakeholders creates structured dialogue between lived experience and institutional perspectives. Together, these approaches ensure that citizen perspectives shape not only the data collected, but how problems are defined and addressed, treating identity as a shared civic concern rather than a purely technical variable.

8. Ethical Considerations - 150 words

Detail the ethical considerations you need to account for in the proposed research. This may include considerations throughout the research cycle (participant recruitment, data collection, data analysis, data sharing).

Please include any considerations for Equity, Diversity and Inclusion in this section.

As a member of the facial difference community, the researcher brings an informed awareness of the sensitivities involved in discussing identity, visibility, and discrimination. This positionality will be approached reflexively and ethically, with attention to avoiding assumption, over-identification, or the privileging of any single narrative within a diverse community.

This research involves sensitive issues relating to identity, appearance, discrimination, and access to public services, requiring careful ethical consideration throughout the research cycle. Ethical approval will be sought prior to data collection. Participant recruitment will be voluntary and inclusive, with clear information provided about the purpose of the research, the use of data, right to withdraw.

Data collection methods will be conducted with attention to emotional wellbeing, recognising that experiences of exclusion may be distressing. Signposting to support resources will be provided where appropriate. All data will be anonymised, securely stored, and handled in accordance with data protection requirements.

9. Research Plan/Timetable - 100 words

Please account for 1 year of training followed by 3 years to conduct your research and complete your PhD (i.e. total of 4 years)

Year 1 will focus on doctoral training, ethical approval, and refinement of the research design. This will include advanced training in qualitative methods, AI governance, and participatory research, alongside a detailed literature review and development of interview and workshop protocols.
Year 2 will involve empirical data collection, including doctrinal legal analysis, policy and system analysis of AI identity infrastructures (GOV.UK One Login), and qualitative interviews with participants and stakeholders.
Year 3 will focus on data analysis and integration of findings across legal, experiential, and design perspectives.
Year 4 will be dedicated to writing, dissemination, and completion of the thesis.

10. How will your proposed research empower citizens to play a key role in AI-enabled futures? – 250 words

How does the proposed research reconcile AI's technical capabilities with citizen centric needs and concerns, by building capability and capacity to design AI products, systems and services that seamlessly connect people and their data to government, industry and organisations, in ways that foreground citizens' needs, rights, and aspirations? How does the proposed research contribute to a new framing of the relationship between citizens, AI and the state/organisations/services?

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society.

This research reconciles AI's technical capabilities with citizen-centred needs by foregrounding lived experience as a source of civic expertise alongside technical and institutional perspectives. Through participatory methods, including interviews, workshops, and community-led documentation practices and narrative collaboration, citizens contribute directly to understanding how AI-enabled identity systems operate in practice, where they fail, and what forms of recognition, dignity, and access matter most. These activities build collective capability by enabling citizens and advocacy groups to articulate concerns, identify shared patterns of harm, and challenge assumptions embedded in technical systems.

Central to this approach is working with community and advocacy organisations to co-design research methods and lightweight digital tools that support documentation, reflection, and collective sense-making. Rather than positioning participation as consultation, the research supports communities to develop their own evaluative frameworks and priorities, empowering them to shape how AI systems are assessed, governed, and contested. Drawing on socio-political understandings of identity and rights, this approach repositions those most affected by AI-mediated exclusion from passive subjects to active agents in defining the values and implications of identity technologies.

In parallel, structured engagement with policymakers, designers, and public-sector stakeholders builds institutional capacity to respond to citizen-generated insight, translating experiential knowledge into governance, design, and accountability practices. By reframing identity not as a purely technical problem but as a shared civic concern, the research contributes to a new understanding of AI-enabled public services as co-produced systems, grounded in trust, responsibility, and democratic legitimacy.

12. References/Bibliography

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3. https://faceequalityinternational.org/facial-recognition-and-the-facial-difference-community-2024-survey-results/
4. Correspondence from Department of Science, Innovation and Technology dated 18th December 2025 and correspondence from the Prime Minister's Office dated 6th January 2026
5. See n1
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13. CHI (2024). Products of Positionality: How Tech Workers Shape Identity Concepts in Computer Vision. CHI '24
14. S Biernoff, 'The Rhetoric of Disfigurement in First World War Britain' (2011) 24 Social History of Medicine 666
15. For further discussion on facial differences as a neglected issue see: Phyllida Swift and Kathleen Bogart, 'A Hidden Community: Facial Disfigurement as a Globally Neglected Human Rights Issue' (2021) 11 Journal of Oral Biology and Craniofacial Research 652
16. Maitlis, S. 2005. "The Social Processes of Organizational Sensemaking." *Academy of Management Journal* 48, no. 1: 21–49.
17. Audio-based narrative reflection has precedent within the facial difference community as a form of collective sense-making, including through participation in award-winning projects such as *The Scars*, which use structured storytelling to articulate lived experience, recognition, and harm
18. For example DSIT service provider iProov, political representatives or The Science, Innovation and Technology Select Committee

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Advert/Studentship Reference number	CDTAI26

1. Working Title – 15 words

This should be tightly focused on the research you are proposing to undertake

Enabling Community Sovereignty over Public AI Systems through Co-Design and Deliberation

2. Introduction and research significance/research motivation - 250 words

Why the topic is important to the design, development and evaluation of AI technologies and their impacts on society? What do we already know? What we don't know?

The North East faces a £30 billion AI Growth Zone investment that will reshape how public services interact with citizens. Government entities in our region like Newcastle City Council and the Combined Authority who aim to deploy AI in community services with trust could evidence this through alignment with the values of citizens. (Gabriel and Keeling, 2025) argue that AI alignment requires the fair evaluation of values and claims from communities. This process would require members of society who are informed and participate equally in the design of AI that impacts them. However, most participatory processes prefer to consult and elicit from communities over giving them co-ownership of outcomes (Delgado et al., 2023).

Our communities deserve a voice in how AI is deployed in the services they rely on. To effectively co-design AI with them, we can provide a tool to understand development decisions and how they can impact their priorities. An interface allowing the exploration of different design choices could support meaningful participation. Drawing on speculative design philosophies, such a tool might enable what Dunne and Raby (2013) call "social dreaming" if participants can experiment with choices and imagine alternative futures. Such a tool could be embedded within a co-design deliberation process, where communities iteratively shape the technical workings of a system and gain sovereignty over the technology they experience.

My research would develop this interface and deliberation process to enable communities to articulate their values and give them the platform to ensure their values are heard and accounted for.

3. Concise Critical Reflection on the Existing Literature – 500 words

What existing research is out there that is relevant to your proposed research? Why is it relevant? And how will your proposed research build on it/extend on it?

Since 2024, central government departments have been required to publish records under the Algorithmic Transparency Recording Standard (ATRS) to address the need for public scrutiny of AI. As ATRS extends to the public sector, change is likely to mandate disclosures and standardise when they occur. However, disclosure alone is insufficient to align technology with society's moral values (Bayamlioglu, 2018). Entities disclosed on the ATRS register are not required to demonstrate continuity between their assessments and communities. We should expect then, if we are to make progress towards AI alignment, that ATRS should evolve to require evidence that systems are aligned with the values of the people they impact (Gabriel and Keeling, 2025).

Looking at participatory processes in AI design, (Delgado et al., 2023) found that projects prefer consulting communities over comprehensive stakeholder ownership of values, aligning with (Gabriel and Keeling, 2025). (Cenci et al., 2023) is a successful co-creation case study translating abstract moral values into technical requirements. They extrapolated values from conversations and designed specifications within those boundaries, an approach that minimally satisfies citizens while preserving technocratic control (Birhane et al., 2022). To claim alignment with communities, co-creation processes should be open to challenges regarding technical specifications representing their values. (Gautam, 2024) highlights how deliberating AI solution appropriateness with communities benefits co-creation processes. Using this as the first stage allows participants to reflect on needs and explore alternative solutions. However, (Huang and Siddarth, 2024) raise the risk of 'Shared Stagnation' if innovation is sacrificed for comprehensive participation. (Young et al., 2024) argue that participatory methods and AI development operate at different scales: methods suited to smaller communities lose power-shifting capacity when applied to institutional-level AI systems. Co-creation requires efficient and scalable processes for widespread adoption; methods like pol.is progress toward this by turning gathered opinions from large populations into actionable consensus statements (Yang and Bachmann, 2025), though further work is needed to maintain community sovereignty at scale without reducing participation to consultation.

A challenge for participation is that most people do not understand how AI systems function (Cohen and Suzor, 2024). Data shows 70% of the public know little about AI system construction (Department for Science, Innovation and Technology, 2024) which impedes communities from meaningfully contesting development decisions. This creates a need for tools that make system architecture understandable to non-technical stakeholders. (Liao and Varshney, 2022) emphasised that XAI explanations fail non-experts, often overwhelming rather than clarifying. What matters is whether an explanation enables people to engage with decisions that shape system behaviour. An interface allowing communities to explore different design choices, such as data selection, annotation, model constraints, and output validation, could support meaningful participation. Drawing on speculative design philosophies, such a tool might enable what (Dunne and Raby, 2013) call "social dreaming" if participants can experiment with choices and imagine alternative futures, articulating values they want embedded in the technology discussed.

My research aims to develop an interactive interface enabling communities to explore design choices and articulate the values they want embedded in systems, build a participatory process that maintains sovereignty at scale, and inform future ATRS requirements for evidence of alignment.

4. What CCAI research theme(s) does your proposed research align to

Research themes can be found here: https://www.northumbria.ac.uk/about-us/academic-departments/computer-and-information-sciences/citizen-centred-artificial-intelligence/

Design & Co-Creation
Communities, Democracy and Society

5. Research Questions Based on the Research significance/Research motivation & Literature Review - 200 words

1. How can a speculative interface for non-experts be developed so that the workings of an AI system can be visualized and experimented with?
2. How do communities respond to using the interface?
3. How can a scalable co-design participatory process be implemented so that communities have equal power to exercise authority over AI system development choices?
4. Who is most affected by the system(s) in development?
5. What values do local communities hold over citizen-facing AI technology?

6. Research objectives – 100 words - Indicative three objectives

1. Design and develop a speculative interface that enables non-experts to visualise and experiment with the workings of an AI system in development.
2. Evaluate how communities respond to the interface, identifying who is most affected by the system and documenting the values local communities hold over citizen-facing AI technology.
3. Develop and implement a scalable co-design participatory process that enables communities to exercise equal authority over AI system development choices

7a. Research Methods – 400 words

data collection methods/tools, sampling & data analysis approach

Phase 1: Partner Engagement and Stakeholder Mapping
Through consulting Newcastle City Council/Local Authority, I will identify an appropriate AI system that they wish to deploy with trustworthiness. Qualitative semi-structured interviews with organisational stakeholders will establish the system's scope and development decisions open to community input. Stakeholder mapping through documentary analysis and consultation with community organisations such as VONNE will identify who is most affected. This approach aligns with the (Bryson, 2004) methodology of documentary work before participatory engagement, and with UK public sector AI guidance on stakeholder impact assessment (Leslie, 2019).

Phase 2: Speculative Interface Design and Development
Using speculative design methods, I will develop an interactive interface enabling non-experts to visualise and experiment with the AI system. Co-design workshops with citizens will shape the interface through iterative prototyping, moving from low-fidelity wireframes to functional implementation.

Phase 3: Community Evaluation
Qualitative workshops with affected community members will evaluate how they respond to the interface. Sessions will combine interface interaction with semi-structured group discussion to understand the usefulness of the interface.

Phase 4: Participatory Process with Interface Deployment
Adopting a participatory action research approach, I will implement a process enabling communities to exercise equal authority over AI development choices. Quantitative methods including Polis-style deliberation will gather opinion at scale, producing measurable consensus statements. The interface will be supplied to aid deliberations. In-person dialogue sessions will be held to accommodate diverse participation needs.

Phase 5: Ongoing Accountability
Drawing on models like Better Reykjavik (Lackaff, 2016), I will establish a continuous channel for citizen-organisation communication where communities can prioritise any issues from AI deployment. This moves ethical assessment beyond static documentation to an ongoing, living process.

Data Analysis
Quantitative participation metrics and pol.is consensus outputs will complement qualitative findings from interview transcripts, workshop discussions, and observational data.

7b. Citizen-Centred Approach - 200 words

How will you work with citizens to ensure that the research is taking a Citizen-Centred approach to AI.

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society

This research positions citizens not as consultees but as co-decision-makers with genuine authority over AI development. Existing participatory AI projects overwhelmingly favour consultation over community ownership, with fewer than 10% involving stakeholders in shaping system scope (Delgado et al., 2023). My approach addresses this gap by engaging citizens throughout the research process and redistributing decision-making power.

In Phase 1, I will identify a real system impacting citizens and reach affected populations. In Phase 2, citizens will co-design the speculative interface through iterative workshops, shaping how AI system workings are visualised and explored. Phase 3 centres community evaluation and in Phase 4 citizens will exercise equal authority over design decisions through a deliberation process. Phase 5 extends citizen engagement beyond the research period, ensuring that they have an ongoing channel of accountability.

8. Ethical Considerations - 150 words

Detail the ethical considerations you need to account for in the proposed research. This may include considerations throughout the research cycle (participant recruitment, data collection, data analysis, data sharing).

Please include any considerations for Equity, Diversity and Inclusion in this section.

Participatory research requires careful attention to power dynamics. I will obtain informed consent that clearly explains how participant contributions will shape both the interface design and deliberation outcomes, ensuring communities understand their role as co-decision-makers.

Data collection through workshops and interviews will create records of community values. All data will be anonymised and stored securely in accordance with GDPR requirements. Participants will retain authority over how their contributions are represented in publications.

Recruitment will prioritise reaching populations facing digital exclusion or disproportionate algorithmic impact and ensure diverse representation across age, disability, socioeconomic background, and digital literacy. Workshop formats will accommodate diverse participation needs through hybrid delivery and accessible materials, recognising that those most affected by AI systems are often least able to participate in conventional consultation processes.

9. Research Plan/Timetable - 100 words

Please account for 1 year of training followed by 3 years to conduct your research and complete your PhD (i.e. total of 4 years)

Year 1: CDT training in public engagement methods, visualisation techniques, and research skills. Engage with Newcastle City Council and the Local Authority to find a suitable system.
Year 2: Phase 1 partner engagement with Newcastle City Council or local authority and stakeholder mapping. Phase 2 speculative interface design and workshops.
Year 3: Phase 3 evaluation of interface through qualitative workshops. Begin Phase 4 participatory deliberation process.
Year 4: Complete Phase 4. Implement Phase 5. Data analysis and thesis writing.

10. How will your proposed research empower citizens to play a key role in AI-enabled futures? – 250 words

How does the proposed research reconcile AI's technical capabilities with citizen centric needs and concerns, by building capability and capacity to design AI products, systems and services that seamlessly connect people and their data to government, industry and organisations, in ways that foreground citizens' needs, rights, and aspirations? How does the proposed research contribute to a new framing of the relationship between citizens, AI and the state/organisations/services?

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society.

Current approaches to citizen engagement in AI development are insufficient. Disclosure frameworks like ATRS create transparency without accountability; participatory projects consult communities on pre-decided technological solutions rather than enabling genuine authority over whether and how AI should be deployed. My research addresses this gap by developing tools and processes that redistribute decision-making power to affected communities.

The speculative interface empowers citizens by making AI system architecture legible to non-experts. Rather than presenting technical explanations that overwhelm, the interface enables communities to explore the consequences of different design choices and experiment with alternative futures for technology. This allows citizens to articulate the values they want embedded before systems are deployed rather than responding to harm afterwards.

The participatory process positions citizens as co-decision-makers with equal authority over development choices. Using scalable deliberation methods, communities can shape system scope and purpose that continues through an ongoing channel for accountability. This reframes the citizen-AI-state relationship from one where technology is done to communities toward one where communities exercise sovereignty over technological choices that affect them.

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UKRI AI Centre for Doctoral Training in Citizen-Centred AI (CCAI)

PhD Research Proposal Form

Please complete this form and upload it to your online application before submitting your application.

- Do not go over the stated word limits.
- Do not submit proposals in any other format unless this has been agreed with a member of staff
- Complete all sections

Advert/Studentship Reference number	CDTAI26

1. Working Title – 15 words

This should be tightly focused on the research you are proposing to undertake

Digital Money and Citizen-Centred Artificial Intelligence: Designing Responsible AI for Youth Financial Wellbeing

2. Introduction and research significance/research motivation - 250 words

Why the topic is important to the design, development and evaluation of AI technologies and their impacts on society? What do we already know? What we don't know?

What we already know:

- The UK Strategy for Financial Wellbeing 2020-2030 states *"A financially healthy nation is good for individuals, communities, business and the economy" [15].*
- Money and finances go beyond cold hard cash and calculative economic terms; they encompass the behaviours, choices and capabilities that shape an individual's lifestyle, financial decision-making, and long-term economic and social wellbeing.
- Financial capability developed in childhood—across home, school and social settings—plays a critical role in shaping confidence, behaviours and resilience in adulthood [16,18,19, 21].
- Financial advice is evolving rapidly, 56% of UK adults used AI for financial advice in 2025, with one-third using it weekly [9].
- AI enabled tools are being embedded at pace in familiar platforms that young people access for information, learning, advice, creativity and companionship [13,19,23]. AI is beginning to appear in financial products designed for children, e.g. Mastercard partnering with Sunshine and Kittens to offer an AI-personalised app for children [4].

What we don't know:

- How AI-mediated financial information will impact children's and young adults long-term financial behaviour and wellbeing
- How AI can be designed, developed and evaluated with young citizens to make it responsible and ethical.

Why the topic is important:

- As AI technologies become an everyday source of financial advice for young citizens it is crucial to collaboratively design, develop and critically examine how AI will mediate this. This participatory approach equips the next generation to be empowered to make informed financial decisions and become confident, financially capable citizens

3. Concise Critical Reflection on the Existing Literature – 500 words

What existing research is out there that is relevant to your proposed research? Why is it relevant? And how will your proposed research build on it/extend on it?

Existing research that is relevant to my proposed research

Money, its design, and the social contexts and relationships in which money is learned, shared and experienced has meanings attached to it, creating, reinforcing and changing bonds within families, societies and institutions [26]. Sociologist Lana Swartz argues; "New forms of money create new forms of identity, new forms of community, and new forms of power." [22] demonstrating that money is not just an economic concept but a social construct. Money also requires an element of co-ordination and labour – also called 'moneywork' to make any transaction work [20]. Money is undergoing rapid and complex digital transformation and its increasing diversity introduces new challenges in how it is acquired, comprehended, and utilised.

A growing body of literature [5,11,14,17,23, 25] highlights that young people are adopting AI enabled tools at pace and are placing undue trust in AI-generated content, potentially limiting their critical thinking skills, blurring distinctions between artificial and human relationships, and are encountering inaccurate or inappropriate advice. Research with adults shows that these risks are particularly salient in financial contexts, where misunderstandings, over-confidence or misplaced trust can have lasting consequences [8].

Research I have collaborated on shows that young people's interactions with digital money is an evolving relationship, shaped by language, trust, context and developmental stage [6] . Yip et al [24]who used co-design methods to explore the complexities of children's engagement with digital finances stress the importance of considering issues like inequality, social justice, and emotional responses to money. Their research encourages designers to create tools that not only teach financial skills but also promote critical thinking about money's role in society [24].

Citizen centered focused research highlights the need to not simply optimise AI for technical accuracy and user experience but to be inclusively designed with citizens' to build critical understanding, capacity and social wellbeing [7,10,12].

Why it is relevant

For a young person in 2025 a complex financial landscape is a lived experience; they may still get cash from a relative, receive pocket money via an app like NatWest Rooster Money [3], exchange their pounds into multiple different in game currencies such as Roblox 'Robux' [1], earn money via online marketplaces, or use their digital skills as a service (Fiverr) [2]. For young people developing financial capability involves navigating and learning all of these methods, systems and social rules that govern them. As AI becomes part of this ecosystem, I anticipate the landscape to become more complex for future generations

I could not identify any research that explores the intersection of AI, young people, financial capability and the role this will play in shaping the next generation of financially confident citizens.

How my proposed research will build on this

Youth financial products are usually adult products with "child-friendly" visual design applied rather than truly child-led responsible design. My work would ensure that young people's perspectives, capabilities, and rights are integral to the design and development and impact of my research.

4. What CCAI research theme(s) does your proposed research align to

Research themes can be found here: https://www.northumbria.ac.uk/about-us/academic-departments/computer-and-information-sciences/citizen-centred-artificial-intelligence/

The proposed research aligns primarily with:

- Design & Co-Creation
- AI in Learning & Education
- Uncertainty, Explainability, Transparency & Bias in AI

5. Research Questions Based on the Research significance/Research motivation & Literature Review - 200 words

- How can we design and use a citizen centered approach that prioritize the lived experiences of young people to ensure that AI helps them towards financial well- being and improve their critical thinking skills not inhibit it.
- How do children find, understand, review and act upon money-related explanations, advice and recommendations delivered via AI interfaces and how these can be responsibility designed with young people.
- Explore the interconnected AI ecosystem for children, how AI plays a role in peer relationships, family dynamics, and broader socio-technical ecosystems such as gaming.
- Examine how credibility, authority, tone, and perceived expertise shape children's reliance on, or uncertainty towards, AI guidance on money topics. How this impacts upon their trust and understanding of financial concepts and their real world lived experiences.
- Investigating what types and forms of financial guidance (e.g. saving, spending, budgeting, in-game purchases, longer-term planning) are suitable at different stages of childhood and adolescence, and how AI systems can adapt explanations accordingly.
- Which research methodologies, such as participatory design and co-creation, are most suitable, and how can they be refined to create a playbook guiding research with children and AI across various topics.

6. Research objectives – 100 words - Indicative three objectives

- Understand young people's lived experiences in relation to AI, financial advice and guidance. Including their wider societal influences and ecosystems in which they operate
- Translate insights into actionable insights and frameworks that will be shared with the financial services industry, policy makers and young people to shape financial well-being.
- Co-create citizen centered research design principles for young people that foster trust, explainability and agency for AI mediated advice and guidance.

7a. Research Methods – 400 words
data collection methods/tools, sampling & data analysis approach

Sampling

I would focus on ages ~11 to ~21, a critical developmental window. Around age 11, access is granted to digitally mediated money systems and increased autonomy (e.g. pocket money cards/apps), while adolescence and young adulthood bring expanding financial responsibilities and adult independence. [6]

I will develop connections and recruit participants via local organisations that support children and their families. This will include both formal organisations such as schools and workplaces but also informal networks and citizen focused organisations. Examples in the North East include Newcastle City Council, VONNE, Health Equity North, Inspire Youth Tyne & Wear and Children & Families Newcastle.

My sampling approach will recruit a diverse group of participants and ensure a mix of demographics and that under-represented groups are included. Varied experiences and confidence levels in financial literacy, current use and understanding of AI are examples of other important sampling criteria.

I intend to engage a core group of young individuals as ongoing citizen representatives throughout this research. As these participants deepen their expertise on the subject, it will be essential to validate findings with a wider cohort of young citizens. Accordingly, I will also conduct separate, one-time studies involving a broader sample of youth to ensure the robustness of the outputs.

Data Collection Methods/Tools

Methodologically, my research would draw on mixed-methods UX and HCI approaches, including participatory and child-centred design, including longitudinal qualitative studies, usability and explainability testing, and human-in-the-loop prototyping. Reflexive learning diaries will be used to capture the insights of young people as the study progresses.

Younge people will be meaningfully involved in the design and deployment of this research to ensure that that financial information or guidance is responsibly designed for them. Including young people as co-designers will surface needs, scenarios, and risks that adult-led design typically misses.

Data Analysis Approach

My approach would follow a citizen centered participatory framework, children and young people would be active contributors to the interpretation and findings of the research.

Qualitative data collected through design exercises, interviews, workshops, or UX testing will be analysed using a thematic analysis approach. Initial coding of the data will be conducted, followed by validation and collaborative interpretation with young participants to ensure co-creation of insights. Analysis of reflexive insights will be used to shape the analysis. This process is designed to uphold a citizen-centered focus throughout the research outputs and findings.

7b. Citizen-Centred Approach - 200 words

How will you work with citizens to ensure that the research is taking a Citizen-Centred approach to AI.

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society

My research will adopt an inside out approach where young citizens lived experiences with finances and AI are central to identifying the problem space, challenges and opportunities. Rather than an outside in approach of taking the current technical frameworks of AI and finances and applying them to citizens as this reinforces power imbalances, and risks simply validating existing assumptions.

I will ensure that my research takes a Citizen- centered approach to AI by:

- Using methods that are participatory and involve co-design and creation
- Conducting transparent and inclusive data analysis and interpretation of outputs with young people
- Working with young citizens to reflect upon their own biases and heuristics, helping them to develop and grow their critical thinking skills in relation to AI and beyond.
- Embedding reflexivity into the research for all participants; young people, guardians, experts and myself
- Involving my young citizens in the dissemination of findings with key stakeholders in the topic area such as banks, schools and voluntary organsiations
- Producing and sharing ideas on citizen centered AI research methodologies with peers such as local voluntary organsiations
- Upskilling my young co-hort to share their learning and reflections with their peers

8. Ethical Considerations - 150 words

Detail the ethical considerations you need to account for in the proposed research. This may include considerations throughout the research cycle (participant recruitment, data collection, data analysis, data sharing).

Please include any considerations for Equity, Diversity and Inclusion in this section.

Ethical considerations will include:

- Topic area will be approached with respect, transparency and without judgement to prevent harm
- Informed consent, assent, and age-appropriate communication will happen during the life cycle of the research
- Research aims will be presented clearly, and age appropriately enabling informed participation choice
- Recruitment strategy will focus on inclusivity and transparency with a diverse cohort of young citizens.
- During data collection, safeguards will be used to manage power imbalances between myself, children, and AI systems, and ensure discussions are developmentally appropriate.
- Data handling will follow strict principles of privacy, anonymisation, and secure storage, being cognoscente of the sensitivity of both financial experiences and AI interaction data.
- Data analysis and dissemination of outputs will balance openness with protection, ensuring findings are reported responsibly and do not contribute to the misuse or over-deployment of AI systems in children's financial lives and beyond

9. Research Plan/Timetable - 100 words

Please account for 1 year of training followed by 3 years to conduct your research and complete your PhD (i.e. total of 4 years)

My research plan would involve the below

Year 1: Undertake CDT training. Build relationships with local schools, charities, financial services organisations. Refine research questions through a literature review and stakeholder engagement and young people's participation. Pilot studies and ethical considerations reviewed.

Years 2–3: Conduct participatory design and research activities as driven by refined research questions in year 1. Including stakeholders and Industry partnerships as applicable to the topic area.

Year 4: Analyse findings, evaluate societal impacts, and complete thesis write-up, producing academic publications and practical design guidelines for responsible AI systems supporting young citizens.

10. How will your proposed research empower citizens to play a key role in AI-enabled futures? – 250 words

How does the proposed research reconcile AI's technical capabilities with citizen centric needs and concerns, by building capability and capacity to design AI products, systems and services that seamlessly connect people and their data to government, industry and organisations, in ways that foreground citizens' needs, rights, and aspirations? How does the proposed research contribute to a new framing of the relationship between citizens, AI and the state/organisations/services?

Please note that by Citizens we are referring to any human or non-human actor or organisation that is part of and/or contributes to society.

My proposed research reconciles AI's technical capabilities with citizen centric needs, rights and aspirations by ensuring that AI is not simply the autocratic decision maker that determines the financial advice and guidance given to young people but as a tool that can be shaped, questioned and designed by the users themselves. This is achieved through participatory design methods and an inside out approach that places young citizens as the architects of the research process, from problem framing to data collection and dissemination.

Furthermore involving young people as active participants and empowering them to articulate what trustworthy, appropriate and responsible AI in their everyday financial lives looks like and ensuring that these insights are translated into design and governance considerations helps directly connect them to data, financial organisations and industry. Positioning young citizens as empowered financial citizens whose needs, rights and aspirations are front and centre.

The research contributes to a new framing of the relationship between citizens, AI and organsiations by demonstrating that by building capacity and capability with young citizens to challenge, scrutinise and shape AI mediated financial guidance a new narrative and equitable power balance can be achieved.

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