From Digital Humanities to Cyber Humanities: A Professional-Mission Framework for Capability and Curriculum Design

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Abstract

Generative Artificial Intelligence is transforming the role of digital technologies across the Humanities. Rather than functioning solely as tools for accessing, analysing or preserving cultural heritage, intelligent systems are increasingly involved in the production, interpretation and validation of knowledge, giving rise to AI-mediated cognitive ecosystems and Hybrid Intelligence paradigms. This transformation raises questions that extend beyond the integration of AI into existing curricula and challenge the professional identity of the Digital Humanist itself. In this position paper, we interpret this transition as an evolution of the Digital Humanities paradigm towards a broader perspective we refer to as *Cyber Humanities*, and propose a professional-mission framework for examining emerging professional profiles in disciplines increasingly transformed by Artificial Intelligence. Drawing on international frameworks, including DigComp 3.0, the UNESCO AI Competency Frameworks and the OECD Teaching Compass, we organise the proposal around four complementary design layers: *Professional Mission*, *Professional Identity*, *Capability Architecture* and *Curriculum Architecture*. The ongoing evolution of the Master's Degree Programme in Digital Humanities at the University of Genoa is used as an illustrative case. The paper aims to contribute to the international debate on the future of Digital Humanities by offering a mission-oriented perspective for rethinking professional identities, capabilities and educational architectures in AI-mediated societies.

Keywords

Digital Humanities, Cyber Humanities, Cyber Humanist, Generative Artificial Intelligence, Professional Mission, Capability Architecture, Human–AI Collaboration

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1. Digital Humanities in AI-Mediated Societies

Over the past two decades, Digital Humanities have accompanied the digital transformation of the Humanities by integrating computational methods, digital infrastructures and information technologies into research, education and cultural heritage practices [1, 2, 3, 4]. During this evolution, digital technologies were largely conceived as tools supporting the production, analysis and dissemination of knowledge.

Generative Artificial Intelligence changes this relationship. Intelligent systems increasingly participate in interpretation, reasoning, content generation and knowledge validation, giving rise to AI-mediated cognitive ecosystems in which human and artificial capabilities become deeply intertwined [5]. This development is also reflected in the growing interest in Hybrid Intelligence paradigms [6, 7].

This shift challenges not only curricula and technical competences, but also the professional identity of the Digital Humanist. The central question addressed in this position paper is therefore not whether Artificial Intelligence should be added to Digital Humanities curricula, but whether the conceptual

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categories that have traditionally defined the Digital Humanist remain adequate in the age of AI-mediated cognition.

We argue that these categories need to be expanded to account for the epistemic, ethical and professional implications of AI-mediated knowledge practices. In this context, Cyber Humanities provide a broader epistemological perspective for examining professional identities, educational models and knowledge production in AI-mediated societies [8].

Where our previous work focused primarily on the epistemological, ethical and governance foundations of Cyber Humanities [5, 8], the present position paper shifts the focus to professional education, examining how Professional Mission, Professional Identity and Capability Architecture can provide a coherent basis for rethinking competences and educational design.

2. From Digital Humanities to Cyber Humanities: Changing Roles, Practices and Epistemologies

The evolution of Digital Humanities is often described through changes in computational methods and technologies [4]. Yet this perspective captures only part of the field's development. Digital technologies have transformed not only research infrastructures and analytical methods, but also the ways in which cultural contents are created, represented and experienced. More recently, Artificial Intelligence has raised questions concerning the epistemological foundations and societal role of Digital Humanities [3, 2, 1].

We interpret these developments through four evolving professional profiles, each associated with a different relationship among technology, knowledge and humanistic practice. These profiles resonate with broader discussions of successive transformations in Digital Humanities, but are used here heuristically rather than historiographically: they are not rigid historical stages or mutually exclusive roles, but progressively richer configurations that help identify the professional shift introduced by AI-mediated environments.

2.1. Digital Humanist as Mediator of Cultural Infrastructures

Early Digital Humanities developed around the digitisation, preservation and organisation of cultural heritage through digital archives, encoding standards, scholarly editions and interoperable repositories [9]. As emphasised in the Digital Humanities Manifesto, digital technologies expanded access to cultural resources and enabled new forms of scholarly collaboration [10]. In this profile, the Digital Humanist acts primarily as a mediator between cultural heritage and digital technologies, adapting computational tools to Humanities research while preserving interpretative traditions [4].

2.2. Digital Humanist as Computational Interpreter of Cultural Data

As digital collections expanded and computational methods became more sophisticated, Digital Humanities increasingly addressed the analysis and interpretation of large-scale cultural datasets through data mining, statistical analysis, machine learning and visual analytics [3]. The Digital Humanist thus evolved towards a computational interpreter, combining data-intensive approaches with humanistic interpretation [2]. Digital objects became not only resources to preserve and access, but also data to model, compare and analyse in order to identify patterns, relationships and cultural transformations.

2.3. Digital Humanist as Designer of Cultural Experiences

Digital technologies also became media for cultural creation and experience. Interactive installations, digital and generative art, virtual and augmented reality, immersive museums and interactive narratives exemplify practices in which technology becomes a constitutive element of both the cultural artefact and the experience through which meaning is produced.

In this profile, the professional mission is to design new forms of cultural expression, interpretation and participation through the integration of humanistic, expressive and technological practices. These developments also anticipated aspects of AI-mediated environments by introducing adaptive interaction, distributed agency and experiential forms of knowledge construction.

2.4. The Emergence of the Cyber Humanist

Generative Artificial Intelligence introduces a further shift. Intelligent systems can generate outputs, adapt responses, support inferential processes and influence how knowledge is interpreted and evaluated. This can be understood as a movement from digital environments towards AI-mediated cognitive ecosystems and emerging forms of Hybrid Intelligence, in which knowledge practices are increasingly shaped by human–AI interaction [5, 11].

Within this context, we propose the *Cyber Humanist* as an emerging professional profile whose defining responsibility is to design, interpret, protect and govern relationships among humans, intelligent systems and knowledge. Human oversight, reflective Human–AI collaboration, cognitive governance and epistemic responsibility therefore become central dimensions of this professional identity [8].

Table 1 summarises the four profiles and their corresponding professional missions.

Table 1
Four evolving professional profiles across Digital and Cyber Humanities. The profiles are heuristic and non-exclusive rather than rigid historical stages.

Role of technology	Professional identity	Professional mission
Digital infrastructures and tools	Cultural infrastructure mediator	Digitise, preserve, organise and provide access to cultural heritage and digital resources.
Computational and data-analysis methods	Computational interpreter	Analyse, model and interpret cultural data through computational and data-intensive methods to support Humanities research.
Technology-enabled cultural creation and experience	Cultural experience designer	Design new forms of cultural expression, interpretation and participation through humanistic, expressive and technological practices.
AI-mediated cognitive ecosystems	Cyber Humanist	Design, interpret, protect and govern human-centred cognitive ecosystems in which humans and intelligent systems collaboratively produce knowledge.

3. Cyber Humanities and the Bidirectional Relationship between Humanities and AI

We use the term *cyber* not to designate a new discipline, but to denote a broader epistemological perspective in which digital technologies act as constitutive mediators of distributed cognitive ecosystems. The central object of inquiry is therefore not technology in isolation, but the dynamic relationships among humans, intelligent systems, knowledge and society. Consistent with the Cyber Humanities Manifesto [5], we frame Cyber Humanities as an epistemological extension of Digital Humanities, not their replacement. At the professional level, established Digital Humanist roles and emerging Cyber Humanist profiles can therefore coexist and collaborate, while remaining distinguished by their missions, responsibilities and capability architectures [8].

Artificial Intelligence is reshaping the methods, practices and cognitive processes of Humanities research. However, this relationship should not be understood as a one-way process of technological influence. While AI enables new forms of interaction, interpretation and knowledge production, the Humanities contribute conceptual, cultural, ethical and epistemological perspectives that are increasingly important for the design of trustworthy, transparent and human-centred AI systems. Their

contribution therefore extends beyond the adoption of AI as a research tool to participation in the design and governance of AI-mediated knowledge environments, bringing interpretative models, ethical principles and human-centred approaches to socially responsible and epistemically reliable uses of intelligent systems [12, 11].

In this respect, Cyber Humanities may play a role analogous to that of Human–Computer Interaction in the evolution of Computer Science. Just as HCI broadened computing by integrating cognitive, social and usability perspectives into system design, Cyber Humanities can contribute cultural, interpretative and epistemological dimensions to the design and governance of intelligent systems.

This bidirectional relationship has direct implications for professional education. If Humanities professionals are expected not only to adopt Artificial Intelligence but also to help shape its development, their professional identity can no longer be defined solely in terms of digital competences. Their mission, responsibilities and capabilities must therefore be reconsidered within AI-mediated societies.

4. Who is the Cyber Humanist?

The transition from Digital Humanities to Cyber Humanities raises a more fundamental question than the adoption of new technologies or the redesign of curricula: *who is the professional called to operate within AI-mediated societies?*

Addressing this question requires more than extending existing competence frameworks with AI-related skills. We therefore characterise the *Cyber Humanist* through the concept of *Professional Mission*, understood as the broader societal responsibility that gives purpose and coherence to the subsequent definition of Professional Identity, capabilities, competences and curriculum. This mission-oriented design logic underpins the remainder of the paper.

4.1. The Professional Mission

Technological transformations reshape not only professional practices but also the responsibilities associated with them. We use *Professional Mission* to denote the broader societal responsibility that gives professional knowledge, skills and attitudes purpose and coherence. In AI-mediated societies, this mission concerns the contribution professionals are expected to make to the conditions under which knowledge is produced, interpreted and validated.

Within this perspective, the Professional Mission is to design, interpret, protect and govern human–AI knowledge environments in ways that preserve human agency, epistemic reliability and social responsibility. The Cyber Humanist therefore helps ensure that the production, preservation and use of knowledge remain human-centred, transparent, trustworthy, culturally aware, inclusive and ethically accountable, while fostering meaningful human–AI collaboration [11]. This mission is consistent with the Cultural Cyber-Critical Ecosystem (C3E) perspective [13, 14].

Professional expertise thus becomes inseparable from shaping and governing the conditions under which humans and intelligent systems collaboratively generate, interpret and validate knowledge.

4.2. Professional Identity

In this paper, the term *Cyber Humanist* does not designate a graduate or specialist in a traditional Humanities discipline, nor does it refer to a single occupational role. It denotes a transdisciplinary professional archetype defined by its mission and responsibilities within AI-mediated cognitive ecosystems, and operationalised through a corresponding capability architecture.

If the Professional Mission defines the societal purpose of the Cyber Humanist, the corresponding Professional Identity describes the role through which that mission is enacted. The Cyber Humanist is therefore not simply an extended Digital Humanist, but a distinct transdisciplinary profile emerging from the convergence of Humanities, Computer Science, Artificial Intelligence, and the Cognitive and Social Sciences [12].

This identity does not arise from the accumulation of expertise across multiple disciplines, but from the ability to integrate diverse forms of knowledge in order to address complex problems that cannot be understood from a single disciplinary perspective. The Cyber Humanist therefore operates at the intersection of technological innovation, human interpretation and societal responsibility, acting as a bridge between the development of intelligent systems and the cultural contexts in which they are designed, adopted and governed.

Within this perspective, the Cyber Humanist is expected not only to use Artificial Intelligence effectively, but also to contribute to its responsible development. This contribution extends beyond technical implementation to include interpretative, cultural, ethical and epistemological perspectives in the design of intelligent systems and AI-mediated knowledge environments. In doing so, the Cyber Humanist can help ensure that technological innovation remains aligned with human values and societal needs.

4.3. From Mission to Capability Architecture: Connections with Competence Frameworks

The Professional Mission and Professional Identity outlined above provide the conceptual foundation for the next step of our argument: the definition of a Capability Architecture for the Cyber Humanist. The purpose of this architecture is not to replace existing competence frameworks, but to provide an intermediate design layer connecting professional purpose and identity with the more operational specification of competences, learning outcomes and educational experiences.

International frameworks such as DigComp 3.0 [15], DigCompEdu [16], the UNESCO AI Competency Frameworks [17, 18], and the OECD Teaching Compass [19] provide important reference points for education in increasingly digital and AI-mediated environments. These frameworks were developed for different purposes and target groups, including citizens, educators and students, and therefore operate at different levels of abstraction and professional specificity.

Despite these differences, they reveal a common evolution beyond the operational use of digital technologies. DigComp 3.0 places increasing emphasis on critical thinking, problem solving, participation and responsible engagement with emerging technologies. DigCompEdu situates digital competence within professional pedagogical practice. The UNESCO frameworks address human-centred interaction with Artificial Intelligence, ethical responsibility, human agency and informed use of AI systems. The OECD Teaching Compass, in turn, foregrounds professional identity, agency, ethical values and the capacity to act responsibly in complex and changing environments.

Taken together, these frameworks indicate that education for AI-mediated societies increasingly requires cognitive, ethical, reflective and governance-related dimensions alongside technical knowledge and operational skills. They therefore provide important building blocks for the education of future Cyber Humanists. At the same time, none of them is intended to define the professional identity of the Cyber Humanist or the specific configuration of capabilities required to fulfil its Professional Mission.

The approach proposed here addresses this complementary design level. Rather than deriving a professional profile directly from a predefined catalogue of competences, it begins by clarifying the societal responsibility associated with the profession and the identity through which that responsibility is enacted. The capabilities required to fulfil that mission can then be identified and related to relevant components of existing competence frameworks. In this way, competence frameworks are not treated as interchangeable taxonomies, but as complementary resources that can be selected, integrated and contextualised within a broader professional architecture.

The proposed progression can therefore be summarised as follows:

$$\textit{Societal Transformation} \rightarrow \textit{Professional Mission} \rightarrow \textit{Professional Identity} \rightarrow$$
$$\textit{Capability Architecture} \rightarrow \textit{Competence Frameworks} \rightarrow \textit{Curriculum Architecture}$$

This mission-oriented conceptual design logic represents the main contribution of the present position paper. It does not propose an alternative to existing competence frameworks; rather, it provides a

higher-level reference through which their components can be interpreted, combined and adapted in relation to a specific professional mission. In the following section, this logic is operationalised through the proposed Cyber Humanities Capability Architecture.

5. A Cyber Humanities Capability Architecture

Once the Professional Mission and Professional Identity of the Cyber Humanist have been established, the next challenge is to identify the capabilities required to fulfil that mission. This represents the transition from defining the purpose and responsibilities of a professional profile to identifying the forms of knowledge, judgement and action through which that mission can be enacted.

In this paper, capabilities are understood as more than individual competences or technical skills. They represent integrated configurations of knowledge, cognitive abilities, professional judgement and ethical responsibility that enable professionals to act effectively within complex human–AI knowledge environments. This interpretation is consistent with approaches to capability in higher education, where capability extends beyond the possession of discrete competences and concerns the ability to integrate and mobilise knowledge, skills and judgement effectively in new and changing circumstances [20]. We therefore use the term *capability* in this higher-education and professional sense, rather than in the normative human-development sense associated with the Capability Approach.

A *Capability Architecture* therefore provides an intermediate conceptual layer between Professional Identity and more operational competence frameworks. It does not simply classify what professionals should know or be able to do; rather, it organises the broader capacities through which a Professional Mission can be enacted and subsequently translated into competences, learning outcomes and educational experiences.

The Capability Architecture proposed here complements, rather than replaces, the international competence frameworks discussed in the previous sections. The following subsections introduce its four domains and examine how they relate to existing frameworks, providing the conceptual basis for the curriculum implications discussed in Section 6. Figure 1 provides an overview of the proposed Capability Architecture and its four complementary domains.

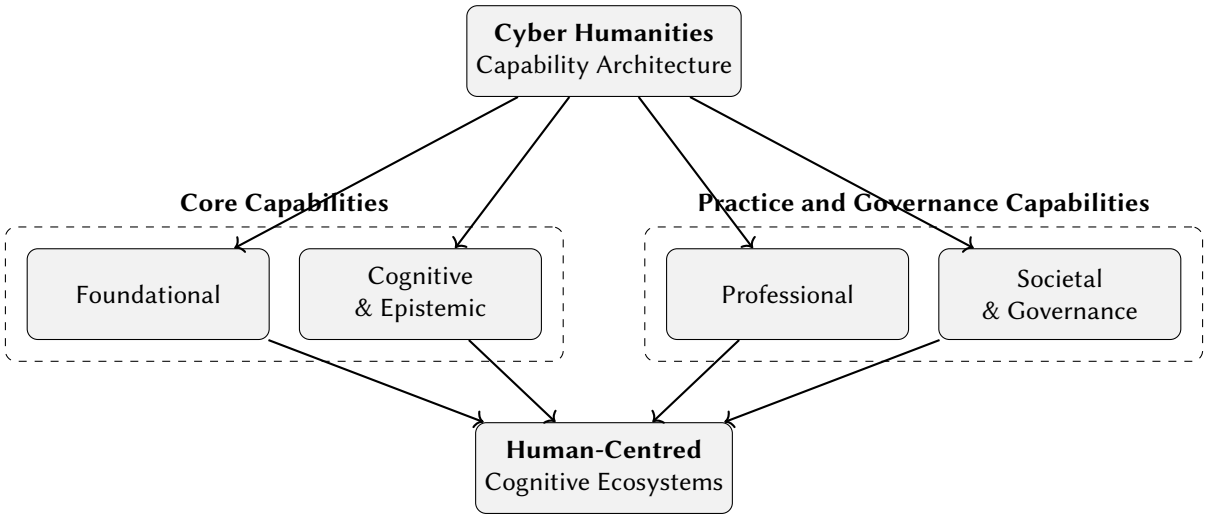


Figure 1: Cyber Humanities Capability Architecture (CHCA). Core capabilities (Foundational and Cognitive & Epistemic) and Practice and Governance capabilities (Professional and Societal & Governance) interact to support the design, implementation and governance of Human-Centred Cognitive Ecosystems.

5.1. Capability Domains

The proposed Capability Architecture is organised into four complementary capability domains that collectively describe the knowledge, judgement and professional capabilities required to fulfil the

Professional Mission of the Cyber Humanist. These domains should not be interpreted as independent areas of expertise, but as mutually reinforcing components of a coherent professional profile. Together, they support the design, implementation and governance of human–AI knowledge environments.

The first domain, *Foundational Capabilities*, provides the disciplinary foundations of the profession by integrating Humanities, Computer Science, Artificial Intelligence, data and knowledge representation, and research methods. These capabilities constitute the common knowledge base upon which the remaining domains are built.

The second domain, *Cognitive and Epistemic Capabilities*, represents the most distinctive component of the proposed architecture. It includes the capabilities required to collaborate critically and responsibly with intelligent systems, such as critical thinking, epistemic agency, reflective delegation, knowledge validation, metacognition, prompt-based inquiry and cognitive governance.

The third domain, *Professional Capabilities*, concerns the application of these capabilities across the principal areas in which Cyber Humanists are expected to operate, including cultural heritage, education, research, communication and media, and human-centred design.

Finally, the *Societal and Governance Capabilities* domain addresses the broader responsibilities associated with AI-mediated societies. It encompasses ethics, inclusion, sustainability, explainability, AI governance and algorithmic citizenship, emphasising that professional practice extends beyond technical expertise to include responsibility towards society.

The relationship with existing competence frameworks is necessarily selective and interpretive rather than one-to-one. Framework components are considered relevant when they support capabilities required by the Professional Mission and are subsequently contextualised within Cyber Humanities. Table 2 identifies representative framework components that inform each CHCA domain, rather than claiming direct equivalence between the two levels.

Table 2
Illustrative mapping between CHCA domains and selected components of existing international competence frameworks. The mapping is selective and interpretive rather than one-to-one.

CHCA Domain	Representative capabilities	Selected framework components
Foundational	Humanities, AI, data and knowledge representation, research methods	DigComp 3.0: information search, evaluation and management (1.1–1.3); computational thinking and programming (3.4). UNESCO AI CFT: AI foundations and applications. DigCompEdu: digital resources; teaching and learning.
Cognitive & Epistemic	Critical thinking, epistemic agency, Human–AI collaboration, reflective delegation, knowledge validation, metacognition, cognitive governance	DigComp 3.0: evaluating information (1.2), collaboration and co-construction (2.4), problem identification and solving (5.1–5.4). UNESCO AI CFT: human-centred mindset, human agency and accountability. OECD Teaching Compass: professional identity, agency and adaptive competencies for navigating complexity.
Professional	Cultural heritage, communication, education, research, human-centred design	DigCompEdu: professional engagement, digital resources, teaching and learning, assessment and learner empowerment. UNESCO AI CFT: AI pedagogy and AI for professional learning. DigComp 3.0: content creation (3.1–3.4) and technological responses to professional needs (5.2–5.3).
Societal & Governance	Ethics, explainability, sustainability, inclusion, AI governance, algorithmic citizenship	DigComp 3.0: digital citizenship (2.3), copyright and licences (3.3), privacy (4.2), wellbeing (4.3) and environmental sustainability (4.4). UNESCO AI CFT: human-centred mindset and ethics of AI. OECD Teaching Compass: ethical values, collective responsibility and agency.

The mapping does not imply that the CHCA domains are derived from these frameworks. In particular,

disciplinary Humanities foundations and domain-specific professional knowledge remain specific to Cyber Humanities; international frameworks provide complementary competence references for their digital, AI-related, cognitive and governance dimensions.

5.2. An Open Architecture

The Capability Architecture proposed in this paper should be interpreted as an open conceptual layer that complements, rather than replaces, existing international competence frameworks. Its purpose is not to redefine digital or AI competences, but to organise them coherently in relation to the Professional Mission and Professional Identity of the Cyber Humanist.

Existing competence frameworks primarily describe *what* citizens, educators and professionals should know and be able to do. The Capability Architecture addresses an earlier design question: *which integrated capabilities are required to fulfil a given professional mission?* It therefore provides a conceptual bridge between Professional Mission, Professional Identity, competence frameworks and Curriculum Architecture.

Within this logic, framework components are selected according to their relevance to the Professional Mission, integrated within broader capability domains, and adapted to the specific epistemic, professional and societal requirements of Cyber Humanities. The resulting architecture should therefore be regarded not as a definitive taxonomy, but as an open structure that can be refined as professional practices, technologies and competence frameworks evolve.

6. Designing the Cyber Humanities Curriculum

If the Capability Architecture operationalises the professional profile of the Cyber Humanist, the next step is to translate it into educational design. The question is therefore no longer which courses should simply be added to existing Digital Humanities programmes, but how learning experiences should be organised to support the progressive development of the proposed capability domains.

This paper does not propose a new curriculum or a model degree programme. Rather, it outlines a set of design principles for translating Professional Mission, Professional Identity and Capability Architecture into coherent learning experiences and curricular choices. In this sense, curriculum design becomes the educational expression of the conceptual architecture developed in the previous sections and a means of guiding the evolution of Digital Humanities education towards the broader perspective of Cyber Humanities.

6.1. Curriculum Architecture

Many university curricula are organised primarily around disciplinary courses, each addressing specific bodies of knowledge and competences. From the perspective proposed here, a *Curriculum Architecture* is instead the coherent organisation of learning experiences through which the capability domains are progressively developed, integrated and assessed.

Such an architecture may combine disciplinary knowledge with project-based activities, interdisciplinary collaboration, research experiences and interaction with intelligent systems. The emphasis therefore shifts from the sequencing of subjects alone to the orchestration of learning experiences and their alignment with the Professional Mission and Capability Architecture.

Individual courses remain essential, but their educational contribution depends increasingly on how they interact across the programme to support the progressive development of foundational, cognitive and epistemic, professional, and societal and governance capabilities required to operate within AI-mediated knowledge environments.

At programme level, this requires explicit alignment among capability domains, learning outcomes, learning activities and assessment. Progression should move from the acquisition of disciplinary and technical foundations towards increasingly integrated tasks requiring interpretation, Human–AI collaboration, validation, professional judgement and responsibility. Such progression need not be

strictly linear: the four domains may develop in parallel and become progressively interconnected as learners engage with more complex problems.

Assessment should consequently address not only final products, but also, where appropriate, the processes through which learners frame problems, interact with intelligent systems, validate outputs, justify decisions and reflect on their implications. In AI-mediated learning environments, such process evidence can be particularly relevant for assessing epistemic agency and responsible Human–AI collaboration.

6.2. Curriculum Design Principles

Several design principles emerge from the proposed framework.

- Integrate Humanities, Computer Science, Artificial Intelligence and Cognitive Science;
- Progressively develop foundational, cognitive and epistemic, professional, and societal and governance capabilities;
- Privilege interdisciplinary, project-based and research-based learning;
- Promote human-centred design and responsible Human–AI collaboration;
- Integrate ethical, cultural and governance perspectives across the curriculum rather than confining them to dedicated courses.

These principles translate the proposed Professional Mission and Capability Architecture into curriculum design choices, while remaining consistent with the international competence frameworks discussed earlier in the paper.

The ongoing evolution of the Master's Degree Programme in Digital Humanities at the University of Genoa provides an illustrative case of this process. In the 2026/27 teaching offer, capabilities relevant to the proposed CHCA are distributed across different teaching units and learning activities rather than concentrated in a single course [21].

Table 3 illustrates this relationship through selected examples. Because the programme includes different curricular paths, the mapping is illustrative rather than exhaustive; moreover, individual teaching units may contribute to more than one capability domain. It is therefore not intended as an empirical validation of the proposed architecture.

Table 3
Illustrative mapping of selected 2026/27 teaching units and activities in the University of Genoa Master's Degree Programme in Digital Humanities to CHCA domains. Some units are track-specific and may contribute to more than one domain.

CHCA domain	Selected teaching units and contributions
Foundational	*ICT & Coding* (12 CFU); *Machine Learning and Deep Learning* (6 CFU); *Artificial Intelligence for Digital Humanities* (6 CFU): programming, AI paradigms, Knowledge Representation and computational methods.
Cognitive & Epistemic	*Artificial Intelligence for Digital Humanities*: problem solving, Prompt-Based Learning, documented Human–AI interaction, critical validation and reflective use of Generative AI; *Cognitive Ergonomics* (6 CFU): cognition and user-centred interaction; *Psychology of Perception* (6 CFU): main cognitive science theories on perception and practical skills in research methodology.
Professional	*HCI & Interaction Design* (12 CFU) and related interaction-design activities; *Storytelling and Generative Artificial Intelligence* (6 CFU): application of digital and AI methods to interactive and cultural practices.
Societal & Governance	*Artificial Intelligence for Digital Humanities*: AI Literacy, ethics, algorithmic citizenship and responsible AI; *ICT & Coding*: digital competence and responsible participation through the DigComp 3.0 component.

Rather than representing a model to be replicated, the Genoa case illustrates how an existing Digital Humanities curriculum can evolve incrementally while preserving disciplinary continuity and progressively incorporating capabilities associated with Cyber Humanities. In particular, *Artificial Intelligence for Digital Humanities* combines project-based learning, documented interaction with generative AI, validation of results and individual oral discussion, providing an example of how cognitive and epistemic capabilities can be developed and assessed through both product and process evidence.

Ultimately, the value of the proposed Curriculum Architecture will depend on its ability to translate Professional Mission and Capability Architecture into coherent learning outcomes, experiences and assessment practices that foster reflective, critical and responsible Human–AI collaboration.

7. Towards a Research Agenda for Cyber Humanities

The conceptual framework proposed in this position paper is intended as a starting point for discussion rather than as a definitive model for the future of Cyber Humanities. Further research is needed to consolidate its theoretical foundations, explore its educational implications and evaluate its applicability across disciplinary and institutional contexts. Accordingly, the contribution of this paper lies not in providing definitive answers, but in identifying research challenges that may guide the future development of Cyber Humanities.

A first challenge concerns the theoretical consolidation of the field itself. Cyber Humanities should progressively develop a coherent conceptual framework capable of explaining the evolving relationships between humans, intelligent systems and knowledge production within AI-mediated cognitive ecosystems [12, 8].

A second challenge concerns the empirical refinement of the proposed Capability Architecture. Future research should investigate how mission-oriented capability domains can support professional profiles across different sectors of the Humanities and evaluate their effectiveness in educational and professional practice.

A third research direction concerns curriculum experimentation. Rather than defining standard curricula, future work should explore how Professional Mission, Professional Identity, Capability Architecture and Curriculum Architecture can be translated into learning outcomes, educational experiences and assessment strategies capable of fostering reflective Human–AI collaboration, epistemic agency and responsible professional judgement.

A further challenge concerns AI-mediated creative practices. As Generative AI increasingly produces images, music, choreography and dramaturgical text, questions emerge that extend beyond the design of cultural experiences discussed in Section 2.3: can such systems be said to exhibit interpretive or even minimally aesthetic capacities? Who bears responsibility for the meaning and authorship of AI-generated artistic outputs? Addressing these questions would require extending the Capability Architecture towards the ethical and epistemic governance of artistic knowledge production.

Finally, the development of Cyber Humanities will require increasingly close collaboration among universities, cultural institutions, schools, research centres, industry and policy makers. Building interdisciplinary communities capable of connecting research, education and professional practice will be essential to ensuring that Cyber Humanities contribute not only to the transformation of the Humanities, but also to the responsible development of Artificial Intelligence [11].

Seen from this perspective, Cyber Humanities emerge as an interdisciplinary research programme. Their long-term value will depend on the ability of the research community to develop shared conceptual models, educational practices and professional frameworks that place human agency, cultural understanding and responsible Human–AI collaboration at the centre of future knowledge ecosystems.

As a conceptual proposal, the framework presented here remains intentionally high-level and requires empirical validation across diverse institutional settings. Its translation into curricula and assessment practices will require further experimentation, while mission-oriented educational models may encounter organisational, cultural and institutional barriers that deserve systematic investigation.

8. Conclusions

Generative Artificial Intelligence is transforming the ways in which knowledge is produced, interpreted and shared. For Digital Humanities, this transformation extends well beyond the adoption of increasingly powerful technologies. It requires reconsidering the relationships among humans, intelligent systems and knowledge itself, together with the professional roles responsible for shaping these emerging cognitive environments.

This position paper has argued that such transformation calls for a broader Cyber Humanities perspective: a framework for understanding and designing AI-mediated cognitive ecosystems in which humans and intelligent systems increasingly collaborate in the production, interpretation and validation of knowledge.

Three interconnected developments follow from this perspective: the epistemological extension of Digital Humanities through Cyber Humanities; the emergence of the Cyber Humanist alongside established Digital Humanist roles; and the shift from competence-centred educational models towards a mission-oriented approach to professional education. These developments are complementary expressions of a broader cultural, educational and scientific transformation.

The principal contribution of this paper is therefore neither a new curriculum nor another competence framework, but a conceptual design logic for rethinking professional education in AI-mediated societies. By linking *Professional Mission*, Professional Identity, Capability Architecture, competence frameworks and Curriculum Architecture, the proposed approach establishes a coherent progression from societal responsibility to educational design. Developed here in the context of Cyber Humanities, this logic may also offer a transferable perspective for other professional domains increasingly transformed by Artificial Intelligence.

Within this framework, the Cyber Humanist is defined not by the technologies they use, but by the responsibility they assume in designing, interpreting, protecting and governing human–AI knowledge environments in ways that preserve human agency, epistemic reliability, cultural diversity and social responsibility. The central challenge is therefore not technological innovation alone, but the capacity to shape the conditions under which future knowledge is produced and validated.

More broadly, the relationship between Humanities and Artificial Intelligence should not be understood as one of simple adaptation. It is better conceived as reciprocal co-evolution: while Artificial Intelligence reshapes the Humanities, the Humanities can in turn influence the development of Artificial Intelligence by contributing cultural, ethical, social and epistemological perspectives to the design and governance of intelligent systems. The future development of Cyber Humanities will therefore depend on sustained dialogue among conceptual reflection, educational experimentation and professional practice.

Cyber Humanities should thus be understood not as a departure from, or replacement of, Digital Humanities, but as an epistemological evolution that enables new professional profiles alongside established ones. The future of Digital Humanities will depend not only on how effectively they adopt Artificial Intelligence, but on how actively they contribute to shaping the human–AI cognitive ecosystems in which future knowledge will be created.

Declaration on Generative AI

During the preparation of this work, the authors used ChatGPT (GPT-5.5 and GPT-5.6) to paraphrase and reword passages, improve writing style, and check grammar and spelling. The authors subsequently reviewed and edited all content and take full responsibility for the publication's content.

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