CURRICULUM VITAE

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Contents

1 Curriculum Vitae **3**
1.1 Education 3
1.2 Professional experience 4

2 Teaching **6**

3 Research activities **8**
3.1 Publications 8

1 Curriculum Vitae

1.1 Education

in progress

HDR (*Habilitation à Diriger des Recherches*) – CNU section 27 (Computer Science)
- Host laboratory: CESI LINEACT UR 7527
- Theme: pedagogical alignment of generative AI – Artificial Intelligence in Education (AIED) and Cognitive Network Science
The HDR is the French post-doctoral degree required to supervise PhD students in one's own name and to apply for full professorships; it is broadly comparable to a UK higher doctorate / DSc.

1 April 2018 – 8 June 2021

PhD, Université de Rouen Normandie: "Ultra-WideBand (UWB) indoor localisation and recognition of industrial actions" (CIFRE industrial doctorate, in partnership with SIAtech)
- Host laboratory: IRSEEM – EA 4353, ESIGELEC, affiliated to Université de Rouen Normandie.
- Thesis director: Houcine Chafouk, Associate Professor (HDR), CNU 61, IRSEEM laboratory, ESIGELEC Rouen – EA 4353
- Co-director: Adnane Cabani, Associate Professor (HDR), CNU 27, IRSEEM laboratory, ESIGELEC Rouen – EA 4353

External examiners (*rapporteurs*):
- Oyunchimeg SHAGDAR, R&D Team Lead, Project manager, PhD supervisor, HDR, CNU 61, VEDECOM laboratory – Paris
- Nacer M'SIRDI, Full Professor, CNU 61, LIS laboratory, UMR CNRS 7020, Aix-Marseille Université

Examination panel:
- Rémi BOUTTEAU, Full Professor, CNU 61, Université de Rouen Normandie, LITIS laboratory – EA 4108
- Enjie GHORBEL, Research Associate, Interdisciplinary Centre for Security, Reliability and Trust (SnT), University of Luxembourg

2017 **Engineering degree** (*Diplôme d'ingénieur*), ESIGELEC – Mechatronics & Electrical Engineering major (five-year CTI-accredited degree, equivalent to an MEng)
Dissertation topic: the first project aimed to develop a tool to support the validation of bodywork functions by simulating typical bodywork equipment (C&TA team, Customer Adaptation & Transport, Volvo Group).
The second project proposed a solution for introducing a new testing method using autonomous test events as input in order to verify the overall behaviour of the truck. This was also to be implemented in Hardware-in-the-Loop (HIL) and Software-in-the-Loop (SIL) systems (I&V team, Integration & Verification, Volvo Group).
Supervised by Daniel LATHUILIÈRE (Volvo Group) and Sylvain TENIER (ESIGELEC)

2016–2017 **Research Master's degree** (MSc by Research) in Mechatronics, Robotics and Automation Engineering, Université de Rouen Normandie
Dissertation topic: development of a modular autonomous drone from scratch.
Academic supervisor: Rémi BOUTTEAU, LITIS laboratory – UR 4108

1.2 Professional experience

since Oct. 2024 **Associate Professor / Researcher** (*Enseignant-chercheur*, permanent contract), CESI, Saint-Étienne-du-Rouvray (76)
CESI LINEACT UR 7527. Research on AI in Education (AIED) and Cognitive Network Science;
Head of the Computer Science and Digital Science programmes at CESI,
Created the three majors structuring the programme: Data Science & AI, Cybersecurity, and IoT (common core in IoT)
Scientific coordinator & expert for the CAIRE project (ANR-23-CMAS-0031, France 2030), winner of the CMA call for expressions of interest

June 2023 – Oct. 2024 **Learning Designer** (*Ingénieur pédagogique*, permanent contract), CESI, Saint-Étienne-du-Rouvray (76)
Designer & expert for the CAIRE project, winner of the CMA call for expressions of interest

Sept. 2021 – June 2023 **Lecturer and Programme Leader in Computer Science**, CESI, Saint-Étienne-du-Rouvray (76)
Leadership of the FISE–FISA 4th-year Computer Science cohorts, Rouen (FISE: full-time track; FISA: apprenticeship track)

2018 – 2021 **Visiting Lecturer**, ESIGELEC, Rouen
Teaching software development with Java, SQL and UML. The aim of this course is to develop a Java application following the specification, coding, implementation and testing phases.

2018 – 2021 **PhD candidate, Mechatronics Engineer**, SIAtech, Rouen
Indoor localisation, MEMS sensors, UWB technology
Implementation of the Agile method; Scrum Master
Verification engineering

2014 – 2017 **Engineering apprentice**, Volvo Group, Lyon site (69)
The first project consisted in developing a tool intended to support the validation of bodywork functions by simulating typical bodywork equipment (C&TA team, Customer Adaptation & Transport).
The second project proposed a solution for introducing a new testing method using autonomous test events as input in order to verify the behaviour of the complete truck. This was also to be implemented in Hardware-in-the-Loop and Software-in-the-Loop systems (I&V team, Integration & Verification).

2 Teaching

Through my teaching duties at ESIGELEC (Software project development) and my positions at CESI, I deliver the following courses:

As **Teaching & Programme Leader** (*Enseignant Responsable Pédagogique*), I was responsible for the 4th-year FISE/FISA engineering programme, Computer Science major (cohorts 2021–2022 and 2022–2023), with a pedagogical strategy based on Problem-Based Learning (PBL) and Active Project-Based Learning (A2P2). The teaching covered a broad range of disciplines: Robotics option, Automated systems, Databases and modelling, Big Data, Artificial intelligence, Project management, Risk management, Introduction to research, and Organisation of scientific events.

Pedagogical supervision of students in initial training (FISE) and in apprenticeship (FISA), notably through tutoring and support during their company assignments and international exchanges. This includes validating assignments and supporting companies in defining their needs, as well as formalising internship and apprenticeship topics.

Design of teaching content, projects, learning sequences and assessments in line with the intended learning outcomes and with the standards of the French Engineering Accreditation Commission (CTI), including leading the national project-design team, detailed case by case for each training block.

Contribution to the promotion of the CESI course catalogue, to selection interviews, open days (JPO) and trade fairs, as well as to the presentation of programmes to the general public.

Administrative management of the programme, including scheduling, compliance with the quality management system, and coordination of external lecturers. Organisation of and participation in assessments, defences and examination boards.

In my role as **Head of Computer Science and Digital Science programmes** within the CESI Directorate of Studies:

I am responsible for the design, implementation and evolution of the curricula in these disciplines. My role includes defining the pedagogical content, selecting appropriate teaching methods, and coordinating training activities so as to ensure that students build competences in step with digital technologies and with new practices in the sector.

I also ensure that programmes remain aligned with academic and professional requirements, in particular those of accreditation bodies such as the CTI and the R&O (French competency reference framework and observatory). This includes embedding active pedagogies such as project-based learning (PBL) and active learning (A2P2). My aim is to offer innovative curricula suited to the rapid evolution of the field, fostering interdisciplinarity and

integrating research advances.

In addition, I take an active part in the pedagogical committees, where I ensure the coherence and quality of the programmes by reviewing feedback from students and teaching staff. These committees make it possible to adapt programmes continuously, to meet stakeholders' expectations, and to guarantee the relevance of the training offered while complying with the quality standards set by the CTI and the R&O.

Since October 2024, as an Associate Professor / Researcher (*enseignant-chercheur*), my teaching activity is increasingly articulated with my research on pedagogical alignment: the constructive-alignment framework (Biggs) that underpins my research is also the framework I use to design and audit the modules listed below.

3 Research activities

My research lies at the intersection of Artificial Intelligence in Education (AIED) and Cognitive Network Science (CNS). It originally focused on indoor localisation and human action recognition, and is now centred on the pedagogical alignment of generative AI systems.

The core problem I address is *pedagogical sycophancy*: the structural misalignment between large language models optimised for immediate user preference and the conditions that actually produce durable learning (Biggs' constructive alignment, desirable difficulties, Kapur's productive failure). My work articulates three complementary contributions: (i) a normative framework combining constructive alignment with the capability approach, operationalised through the Biggs Alignment Index (BAI); (ii) a measurement instrument, APed, which quantifies the pedagogical alignment of AI-generated tutoring interactions; and (iii) a real-time corrective mechanism, the PALOMA/DANA closed-loop neuro-symbolic architecture for LLM tutors.

More broadly, I investigate to what extent the integration of AI technologies – multimodal large language models (MLLM), Retrieval-Augmented Generation (RAG), neuro-symbolic architectures – can transform learning and training processes into a genuinely *capacitating* AI, ensuring effective human–machine collaboration, personalised learning paths, and an ethical and responsible use, in both educational and industrial contexts.

I am scientific coordinator of the CAIRE initiative (ANR-23-CMAS-0031, France 2030) .

3.1 Publications

Peer-reviewed international journals

1. **M. Delamare**, R. Boutteau, X. Savatier and N. Iriart, "Static and dynamic evaluation of an UWB localization system for industrial applications", *Sci* (MDPI), vol. 2, no. 2, p. 239, April 2020, doi: `https://doi.org/10.3390/sci2020023`

2. **M. Delamare**, F. Duval and R. Boutteau, "A new dataset of people flow in an industrial site with UWB and motion capture systems", *Sensors*, 20(16), 4511, 2020, doi: `https://doi.org/10.3390/s20164511`

Journal articles under review

1. **M. Delamare** and D. Baudry, "The Constructive-Alignment Gap in AI-in-Education: An Umbrella Review of Applications and Ethical Shifts", *International Journal of Artificial*

Intelligence in Education (IJAIED, Elsevier, IF 8.5, Q1). Submitted 15 May 2026 (ref. IJAIE-D-26-00438) – under editorial evaluation. *PRISMA 2020 umbrella review, 114 included studies; introduces the Biggs Alignment Index (BAI).*

2. **M. Delamare**, F. Maillard and C. Cruz, "Quantifying Pedagogical Alignment with Large Language Models: The APed Metric and the 'Reductionist Drift' ", *International Journal of Artificial Intelligence in Education* (IJAIED). Submitted 22 May 2026 (ref. IJAIE-D-26-00450) – under editorial evaluation. *Multi-model benchmark (10 LLMs), Bland–Altman agreement analysis, formalisation of the Reductionist Drift.*

3. **M. Delamare**, C. Lemaire and M. Rousseau, "Un dispositif IA pour développer les capabilités critiques", *Éducation permanente*. Submitted – under double-blind peer review. *Design-based study of "Grand-Mère Ylla", an AI agent with deliberately visible biases, used to develop critical capabilities in engineering students.*