TABLE B – PhD Programme in COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE

THE PhD PROGRAMME	
Administrative Location	University of Udine - Department of Mathematics, Computer Science and Physics (DMIF) – via delle Scienze 206, 33100 Udine, Italy (+39 0432 558400).
Associated Location	Fondazione Bruno Kessler – 77 via Santa Croce, 38122 Trento (TN), Italy
Location for Training, teaching and research activity	Teaching and other training activities will take place primarily at the administrative programme location or in other locations of the University of Udine. The research program will be mainly developed, with reference to the scholarship (see art. 11 of the Call) and/or to the supervisor assigned, at one of these locations: administrative location, associated location, financial supporter's location (if the financial supporter is an external institution).
Coordinator	Federico Fontana – University of Udine (coordinatore.iai@liste.uniud.it)
Programme duration	3 years
Curriculum	-
Research topics	- Algorithms - Acoustic scene analysis and Machine listening - Artificial intelligence in agrifood - Automatic planning and scheduling - Autonomous systems - Blockchain and Digital ledger technologies - Computational biology and Bioinformatics - Computational intelligence and Optimization - Computer vision - Crowdsourcing and Human-in-the-loop AI - Cyber-security - Data science and Big data analytics - 3D digitalization with Artificial intelligence - Distributed systems: models and applications - Formal methods and Automatic verification - Human-Computer interaction, Auditory-tactile interfaces - Knowledge representation and Automatic reasoning - Information retrieval - Internet of things: platforms and technologies - Logics in computer science - Machine learning and Deep learning - Medical informatics, Tele-medicine and e-Health - Methodologies, languages and techniques for problem solving in artificial intelligence - Natural language processing - Predictive monitoring, diagnostics and maintenance - Social systems and Recommendation systems - Software engineering - Virtual reality, Serious games.
Research programs	Decided by the Teaching Board within the PhD programme Research topics.
Programme website	https://www.uniud.it/it/ricerca/lavorare-nella-ricerca/dottorato-ricerca/inostricorsi/area-physical-science-and-engineering/informatica-e-intelligenza-artificiale/il-dottorato https://www.dmif.uniud.it/dottorato/iai/ https://phd.fbk.eu/https://phd.fbk.eu/

ADMISSION REQUIREMENTS	
Required degree	Italian Laurea (before DM 509/99) or Italian Laurea Specialistica/Magistrale (ex DM 509/1999 and Decree DM 270/04). Foreign degrees and titles: refer to art. 3 and 4 of the Call.
Knowledge of the following foreign language	English

DOCUMENTS AND TITLES TO BE ATTACHED TO THE APPLICATION FOR ADMISSION	
Compulsory documents (Art. 5 of the Call)	1. Certification or self-certification (refer to art. 5 paragraph 5 of the Call) of the academic title needed for admission to the PhD programme (with candidate's grade and highest possible grade) and officially certified list of the exams (with candidate's grades, average grade, highest possible grade) passed during the Italian first level (bachelor) and the Laurea Specialistica/Magistrale programmes or during the Italian programmes ante D.M. 509/99 or during the foreign academic programmes; 2. Curriculum vitae et studiorum, dated and signed; 3. Copy of a valid identity document (citizens of countries not belonging to the European Union a copy of a valid passport, comprehensive of the pages containing the holder's photo, personal details, passport number, date and place of issue, date of expiry); 4. Master thesis ("Tesi di Laurea") associated to the degree/title providing access to the PhD programme. Applicants who are not graduated on the expiration date of this Call

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	must submit an extended abstract in place of the complete thesis, in Italian or English language, signed by the thesis Supervisor (between 15.000 and 25.000 characters, spaces included); 5. Research project, dated and signed, referred to the aforementioned research topics and to the scholarship research programs specified in this Table, with specific reference on the Teaching Board skills described in https://www.dmif.uniud.it/dottorato/iai/collegio-docenti/ (between 5.000 and 10.000 characters, spaces included, in English language); 6. Motivation letter from the Applicant explaining the reasons for admission to the PhD programme, dated and signed (between 1.500 and 2.500 characters, spaces included).
Optional documents **(Art. 5 of the Call)**	1. Publications (max 3); 2. Recommendation letters (max 2) written by university professors, scientific researchers or other experts in the specific research topics (art. 6 of the Call).
All titles must be presented exclusively in PDF format, dated and signed by the candidate.	

SELECTION COMMITTEE	
Appointed Members	Luca Chittaro – Full Professor – University of Udine Alessandro Cimatti – Head of Research unit – Bruno Kessler Foundation Stefano Mizzaro – Full Professor – University of Udine Riccardo Spizzo – Head of Medical unit – Centro di Riferimento Oncologico – Aviano (PN) Niki Martinel – Associate Professor – University of Udine Dario Della Monica – Assistant professor – University of Udine
Alternate Members	Alberto Policriti – Full professor – University of Udine Massimo Vecchio – Head of Research unit – Bruno Kessler Foundation Federico Fontana – Associate professor – University of Udine

ADMISSION

GENERAL COMPETITION (art. 8 of the Call for Applications)

Positions available: 14					
Detailed description	*N.*	*Funding*	*Annual gross amount*	*Period abroad*	*Research program*
Positions WITH SCHOLARSHIP: 11	4	University of Udine	€ 16,243.00	max 6 months optional*	In line with the research topics of the PhD programme
	3	Associated Institution: Fondazione Bruno Kessler	€ 16,243.00	max 18 months optional	- Reconfigurable and trustworthy pandemic simulation - Reverse Engineering via Specification Mining - Condition monitoring and predictive maintenance of complex industrial systems: Model-based reasoning meets Data Science - Planning and scheduling with time and resource constraints for flexible manufacturing - Meta-learning for efficient 3D representations - Boosting Digital Heritage (DH) with advanced AI methods
	2	External Institution: Centro di Riferimento Oncologico with legal venue in Aviano (PN)	€ 16,243.00	max 6 months optional	Artificial Intelligence and Data Analysis for Personalized Oncology
	2	University of Udine – Project PSA - HERES	€ 16,243.00	max 6 months optional	- Organization, modeling and digital storage of heritage documents - Deep Learning for Digital Humanities
Positions WITHOUT SCHOLARSHIP: 3	3	-	-	-	In line with the research topics of the PhD programme

* Aalborg University Copenhagen, Copenhagen (Denmark), provides one Nordforsk scholarship amounting to € 23014,92 (gross amount) to fund an additional 12-month mobility research referred to "Nordic SMC – Nordic Sound and Music Computing Network" project on the topic "Algorithms for audio-tactile rendering in the Internet of Things" at the Multisensory Experience Lab in that University.

Competition procedure and schedule

Titles evaluation and oral examination.
For the evaluation of applicants' attitude for scientific research and their basic skills before the course program, the Selection Committee can attribute up to 100 points to each applicant: at most 30 points to the titles and at most 70 points to the oral examination. The applicant is admitted to the oral examination if he/she scores at least 18 points for the titles. The oral examination is passed by scoring at least 49 points. The applicant

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is eligible for the PhD programme if he/she passes the oral examination. Only for eligible applicants, the points attained in in the oral examination will be added to the points of the titles. **DATE FOR THE PUBLICATION OF ADMITTED APPLICANTS TO THE ORAL EXAMINATION: within September 9, 2022.** **DATE FOR THE PUBLICATION OF THE FINAL RANKING LIST: within September 30, 2022.**		
Foreign language that can be used for examination	Italian or English	
Evaluation of the titles	Curriculum vitae et studiorum, academic title, exams and master thesis (or its abstract)	Max 18 points
	Research project, scientific publications, Applicant's motivation letter and Referees' recommendation letters	Max 12 points
Oral examination	Starting score bonus	At most 2/3 of the total score obtained from the evaluation of the titles
	Interview about titles, previous career and research project also aimed at understanding the Applicant's knowledge about fundamental topics in computer science and artificial intelligence, as well as his or her full eligibility to receive, if preferred, a scholarship funded by external institutions. Reading and understanding a short scientific text in English.	Max 50 points
Calendar of the oral examination	**Date**	September 21, 2022
	Time	9:30 AM
	Place	Department of Mathematics, Computer Science and Physics, (DMIF) "Sala Riunioni" – via delle Scienze 206, 33100 Udine https://www.dmif.uniud.it/il-dipartimento/sedi/
	The oral examination may take more than one day. Applicants must exhibit a valid personal identification document for admission to the oral examination.	