STRATEGIC SYNERGY FOR INNOVATION : COMPUTER SCIENCE & AI PROGRAMS

French University in Armenia (UFAR) in partnership with University of Toulouse

UFAR
FRENCH UNIVERSITY
IN ARMENIA

Université de Toulouse

The Power of French-Armenian Excellence

A Program Designed for Global Leaders and Digital Transformation.

The Bachelor of Science (BS) in Computer Science is a four-year, full-time program offered by the **Faculty of Computer Science and Applied Mathematics** at **UFAR**. It is specifically engineered to meet the evolving demands of the global technology sector, focusing on critical domains like **Artificial Intelligence, Industry 4.0, and Cybersecurity.**

Upon graduation, students receive not one, but two top-ranked diplomas:
- Bachelor of Science in Computer Science (UFAR, Armenia)
- Licence en Informatique (University of Toulouse, France)

This dual recognition ensures that our graduates possess a globally competitive profile, validated by the rigorous academic standards of both the French and Armenian higher education systems.

Key Program Facts:
- Duration: 4 Years (Full-Time)
- ECTS: 240 Credits
- Focus: Computer Science, Artificial Intelligence, Embedded Systems, Applied Mathematics.

Powered by Research:
Your Connection to Europe's Leading Tech Hub

Bridging Academia and Industrial Innovation through Toulouse ecosystem.

What makes this program stand out is the direct involvement of world-class French research institutes in the curriculum delivery and academic governance. Our students benefit from expertise forged at the heart of European technological innovation.

Academic Partner: University of Toulouse (UT), France

Toulouse is a globally implemented under hub for aeronautics, space, and digital technologies. UT is a top French university known for its excellence in science and engineering.

Shared Pedagogy: *Expertise from Europe's Research Frontier*

The program is realized through joint academic supervision, ensuring consistency and high quality. **Approximately one-third of our professional courses are delivered directly by leading professors from Toulouse University who are active researchers at the globally recognized IRIT and ANITI institutes.** This ensures that the content aligns with the latest international standards and research trends in AI and computer science.

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Research Support: IRIT and ANITI

Our academic content and research-based projects are supported by two of Toulouse's most influential research bodies:

Institute	Focus & Impact
IRIT (Institut de Recherche en Informatique de Toulouse)	One of the largest Computer Science research centers in Europe (over 700 experts). UFAR students benefit directly from professors who are also IRIT members, bringing cutting-edge research in **Data Science, Machine Learning, and Systems Reliability** directly into the classroom.
ANITI (Artificial and Natural Intelligence Toulouse Institute)	A leading national institute spearheading research in **Hybrid AI** (combining data-driven learning with formal methods). ANITI's educational agenda prioritizes increasing the talent pipeline in AI, ensuring our curriculum remains at the forefront of this globally critical technology.

The BS Curriculum:
Building the Modern Engineer

Targeted Skills for Industry 4.0 and Beyond
(Bachelor's Program).

The comprehensive BS curriculum blends robust theoretical foundations in Mathematics and Algorithmics with intensive, hands-on professional application in core computer science disciplines. This program enables students to add immediate value in a professional environment.

Core Domains of Expertise

The program deliberately focuses on high-demand sectors driving the global economy:

- **Artificial Intelligence (AI) & Data Science:** Deep dives into Machine Learning, Data Mining, and foundational algorithms necessary for building intelligent systems.
- **Embedded Systems & Smart City:** Designing, programming, and integrating hardware/software systems for next-generation devices and infrastructure.
- **Reliability & Cybersecurity:** Focusing on the integrity, security, and robust operation of complex digital systems—a priority for any industrial partner.
- **Industry 4.0 & Digital Management:** Understanding how to apply IT solutions (e.g., IoT, advanced automation) to optimize industrial processes.

Methodology	Details	Impact for Industry
Hands-On Practice (TP)	Intensive lab work and practical projects comprise approximately **one-third of the total teaching time.**	Graduates are immediately functional with industry-standard tools and workflows.
Professional Projects	Students engage in industry-driven professional projects, applying their knowledge to complex, interdisciplinary challenges. **This hands-on approach actively boosts entrepreneurial activities and innovation potential.**	Development of teamwork, project management, and problem-solving skills critical for high-tech teams.
Internships (Stage)	Opportunities for internships, often facilitated by our extensive network of industry and research partners, including potential international mobility.	Direct exposure to corporate culture and immediate career networking.

Bachelor Career Pathways

Investing in a UFAR Graduate is Investing in Future-Proof Expertise.

For industrial partners and parents, the ultimate measure of success is the career trajectory of the graduate. Our program ensures students are equipped for immediate employment or seamless progression to advanced studies globally.

Graduates are prepared to step into crucial roles in local and international high-tech companies, focusing on innovation and development:
- **Software Development Specialist:** Designing, coding, and testing complex software solutions across various platforms.
- **Tech Team Leader/Project Coordinator:** Leading programming teams and managing the lifecycle of software products in high-tech environments.
- **Database Administrator (DBA):** Managing, securing, and optimizing critical data infrastructure.
- **Computer Network Administrator:** Ensuring the reliability and security of organizational networks.
- **AI/ML Junior Analyst:** Assisting in the development and deployment of machine learning models.

Advanced Study Opportunities

The academic rigor of the dual French-Armenian degree provides a strong foundation for continuing education:

Master's Programs: Graduates are highly qualified to pursue Master's degrees at UFAR (e.g., the Master in Artificial Intelligence), at Toulouse University, or at other prestigious universities worldwide, ensuring continuous specialization in emerging fields.

We train specialized professionals capable of addressing the technological challenges of tomorrow, combining deep scientific knowledge with French methodological rigor and a clear focus on the needs of the Armenian and global digital economy.

Master of Science in AI: Specialization and Research Excellence

Elevate Your Expertise: From Engineer to AI Specialist.

The Master of Science (MS) degree in Computer Science, specializing in Artificial Intelligence: Foundations and Applications (IAFA), is designed to deepen the technical knowledge gained at the Bachelor level, positioning graduates as experts in the most transformative technology of the 21st century.

The Dual Master's Degree Advantage: Global Recognition Upon successful completion, students are awarded two postgraduate diplomas:

1. Master of Science in Computer Science (UFAR, Armenia)

2. Master en Informatique (Université Toulouse III – Paul Sabatier, France)

This dual qualification provides Level 7 recognition on the NQF/EQF framework, validating the graduate's expertise on a global scale.

Program Focus & Objectives: The core objective is to achieve a high level of mastery in AI fundamentals, enabling students to:
- **Train specialists** in the theory and application of modern AI.
- **Deepen understanding** of AI's critical links with robotics, human-machine interaction, and the reliability of complex digital systems.
- **Master the two pillars of modern AI:** Advanced Machine Learning (including neural networks) and Knowledge Representation & Reasoning.

Duration and Admission

Duration: 2 Years (Full-Time)
ECTS: 120 Credits
Admission: Bachelor's degree (Licence) in Computer Science or equivalent.

Advanced Research Environment: The MS program leverages the established research partnership, with curriculum content and academic supervision drawn from Toulouse's premier research laboratories, including IRIT, IMT (Institut de Mathématiques de Toulouse), and LAAS (Laboratoire d'Analyse et d'Architecture des Systèmes). This direct connection ensures the curriculum remains on the cutting edge of global AI research.
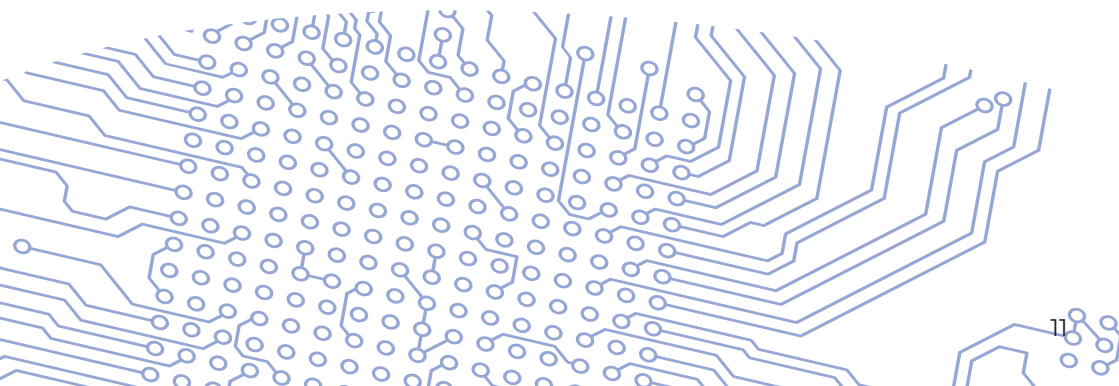
Master's Curriculum and Career Impact: The AI Architect

Specialized Pathways for Complex Digital Systems.

The two-year Master's program transitions students from broad computer science knowledge to highly specialized expertise through focused training tracks and intensive practical work.

AI Three Pillars of AI Specialization

Students refine their skills within three crucial application domains, addressing the diverse needs of the modern tech industry:

Data and Knowledge Systems: Focusing on structured data representation, advanced text processing, information access, and transforming raw data into usable knowledge.

Visual and Multimedia AI: Dedicated training in digital imagery, 3D graphic computing, and the advanced analysis of audio-visual content.

Robotics and Interaction: Specializing in the integration of AI into robotic systems, with a strong emphasis on computer vision and natural language interaction.

Intensive Practical Integration

Theoretical knowledge is cemented through real-world application, mirroring the challenges of high-level industrial and research environments:

Professional Projects: Mandatory projects (e.g., the M2 "Chef d'œuvre") focused on implementing advanced AI competencies.

Research Initiation: Small group projects dedicated to scientific research, preparing students for doctoral studies and advanced R&D roles.

Mandatory Internship: A long-duration internship (5 to 6 months in M2) providing essential immersion in industrial settings or research laboratories.
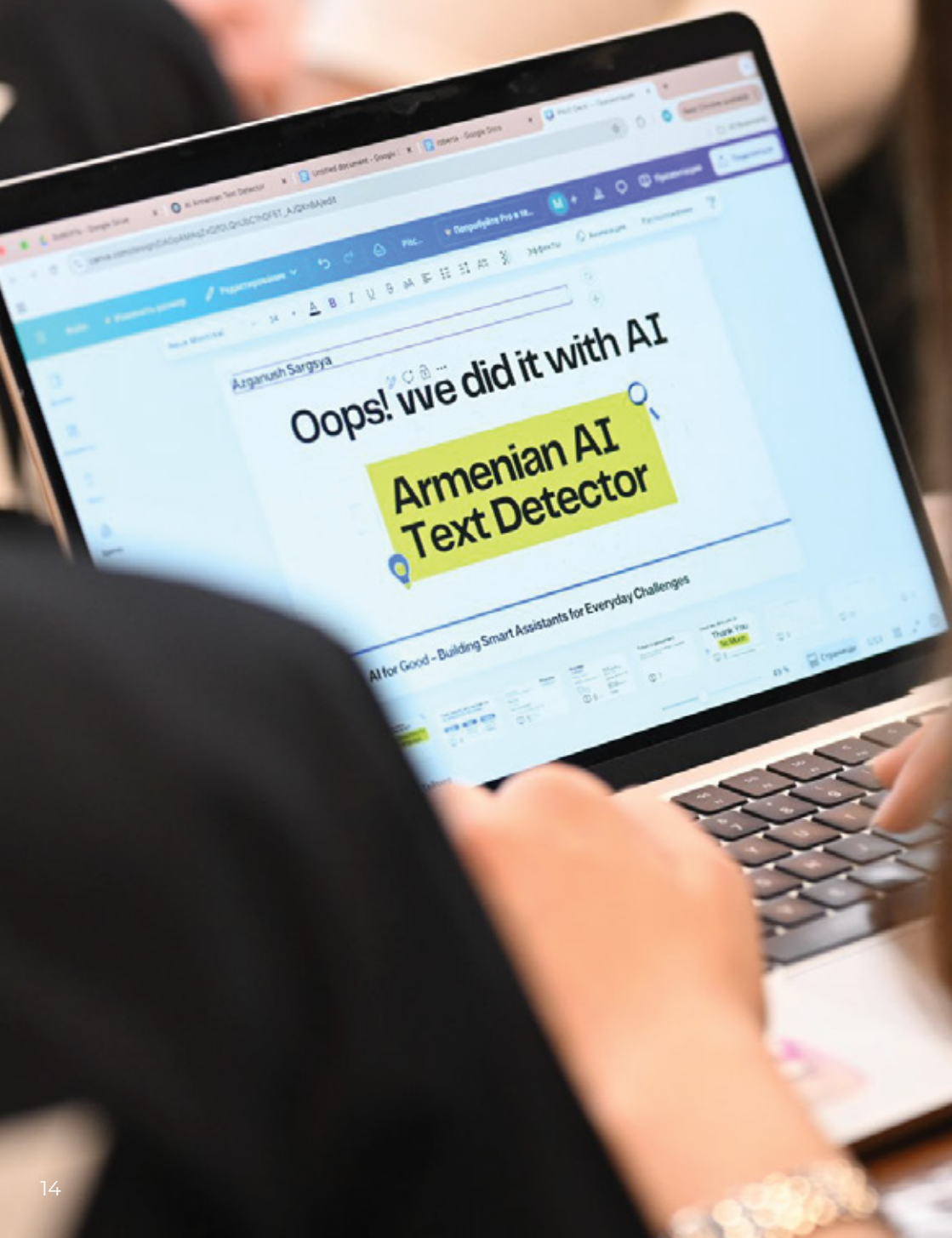
High-Impact Career Pathways

Graduates emerge ready for high-level roles focused on strategic technical oversight and innovation. Furthermore, the curriculum includes transversal skills in management and business creation:

Career Pathway	Details
AI System Architect	Designing and overseeing the implementation of complex, large-scale AI solutions.
R&D Engineer / Data Scientist	Conducting fundamental and applied research, developing novel algorithms and machine learning models.
Director / Expert in Information Systems	Providing high-level expertise, security, and administration for large organizational IT infrastructure.
Management & Entrepreneurship	Equipped with the skills to manage technical teams, understand business finances, and initiate the creation of a new technology company.
Doctoral Studies	Direct progression to Ph.D. programs in Computer Science and Applied Mathematics globally, supported by a research-intensive degree.

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