Giancarlo Frison

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SKILLS

Full-Stack Development: Expertise in end-to-end software development, web frameworks, Java, Scala, and JavaScript.

Technical Architecture: Aligning stakeholder vision with practical implementation, bridging high-level design with hands-on development.

AI: NLP, deep learning, hybrid probabilistic/symbolic AI, program synthesis, GenAI.

Research & Innovation: Developing cutting-edge computational solutions to drive technical and business improvements, including intellectual property development.

Thought Leadership: Communicating complex ideas to stakeholders and advocating for innovative initiatives.

EXPERIENCE

SAP, Munich - *Software Research Engineer*

2017 - PRESENT

Key Projects & Innovations:

- **Declarative Optimization Language**: Designed and implemented a functional-logic programming system integrating relational algebra and combinatorial primitives, enabling efficient resolution of complex optimization challenges through a simple syntax humans and AI agents can easily generate and maintain.
- **Hybrid AI for Retail Q&A**: Developed an advanced neuro-symbolic question-answering system combining symbolic AI and LLMs to interpret complex customer queries, outperforming traditional RAG methods in precision and granularity.
- **Knowledge-Driven Recommender Engine**: Built a dynamic recommendation system leveraging knowledge graphs to generate logically justified product suggestions. Incorporated interactive preference elicitation to refine results and reasoning.
- **AI-Powered Sales Automation**: Engineered an adaptive sales assistant using Bayesian networks and reinforcement learning. The system personalizes offers and sales strategies by inferring customer preferences and behavioral traits through interactive dialogues.
- **Conversational Commerce Platform**: Pioneered a neural network architecture (2017) for e-commerce interactions via Facebook Messenger and SAP. Enabled natural language product searches, order placement, FAQ navigation, and ticket creation.

SAP, Munich - *Development Architect*

2014 - 2017
- Designed and developed an inter-process software library for **SAP Commerce Cloud**, enabling seamless remote service access for developers. This standardized solution, now part of the SAP Commerce Toolkit, utilized **event-driven programming** to optimize resource efficiency.
- Enhanced the core platform's service layer and **ORM framework**, improving performance and scalability.
- Optimized **high-throughput** libraries within the SAP Commerce Toolkit to maximize efficiency and reduce latency.

TechPeaks, Trento - *Selected Attendee*

2013 - 2014
- Chosen for a [competitive training program](#) focused on **Lean Startup** methodologies, **business planning**, and corporate administration.
- Developed and pitched a **comprehensive business plan** for securing (successfully) financial grants.
- Strategic partnerships with key stakeholders to drive business growth.
- Obtained a food management business license, ensuring regulatory compliance.

Mérieux NutriSciences Chelab, Italy - *Development Architect*

2011 - 2013
- Conducted stakeholder interviews and analyzed business processes to assess software architecture needs, leading to the prototyping of the company's Laboratory Information Management System (LIMS).
- Designed a domain-specific language (DSL) to optimize chemical workflow management.
- Mentored the development team in rapid web application development using Grails.
- Established a delivery pipeline to streamline development and deployment processes.

Skebby, Milan - *Senior Software Developer*

2010 - 2011
- Designed and developed a distributed microservices architecture for high-volume B2C and B2B SMS delivery management.
- Mentored team members on best practices for scalable and resilient system design.
- Implemented an Enterprise Integration Pattern (EIP)-based architecture, leveraging ActiveMQ for inter-service communication.
- Optimized system performance and reliability through microservices orchestration and message-driven workflows.

Quinary, Milan - *Senior Software Developer*

2008 - 2010
- [Re-engineering](#) the SMS B2B delivery system for Vodafone based on micro-service architecture with messages broker (FioranoMQ).

Nimbuzz, The Netherland - *Senior Software Developer*

2007 - 2008
- Implemented high-throughput XMPP server-to-server Java framework for chat protocols through REST API.

Ats, Milan - *Senior Software Developer*

2006 - 2007
- Created the BrokerTec financial market extension, integrated into the trading application, enabling trades of REPO market government securities.
- Designed and implemented internal framework for interfacing external API in a declarative way, solely by XML definitions.

Abla, Milan - *Senior Software Developer*

2006 - 2007
- Developed the BrokerTec financial market extension, seamlessly integrating it into the trading platform to facilitate REPO market government securities transactions.
- Designed and implemented an internal framework to streamline external API interactions using a declarative XML-based approach, eliminating the need for manual coding.

SecServizi, Padova - *Software Developer*

2002 - 2006
- Developed custom extensions for IBM Rational Software Architect to support [Low-Code/No-Code](#) Model-Driven Architecture (MDA).
- Empowered business analysts and non-developers to design banking services through intuitive UML-based modeling tools.
- Streamlined software development processes, reducing dependency on manual coding for critical financial applications.

EDUCATION

Open University Cyprus   *- Master Science - Cognitive Systems*
2023 - Dec 2025 (estimated)
Master Thesis Kubrick: Programming System for Enhancing AI-assisted Development

Universita' degli studi di Padova *- B.Eng - Ingegneria Informatica ed Automatica*
1995 - 1999

Istituto Tecnico Industriale   *- High school - Diploma Perito Elettrotecnico*
1990 - 1995

PATENTS

Natural language & data programming for combinatorics *- 19/365,428 Pending*
2025
Hyper-graph store representation and query mechanism   *- 12,386,818 Granted*
2025
Consumer recommender with Knowledge Graphs   *- 17/546,426 Granted*
2025
Time-based query processing for system dynamics   *- 18/078,558 Granted*
2023
Database query generation with discrete training data   *- 18/492,418 Pending*
2023
Low-code algorithm for knowledge reasoning   *- 18/078,566 Pending*
2022
Concept search in e-commerce via word embeddings   *- 16/201,737 Granted*
2022
Symbolic machine learning over Knowledge Graphs   *- 17/546,450 Pending*
2021
Extraction of collations for search   *- 16/687,982 Granted*
2021
Foraging Preferences for E-Commerce Recommendation *- 16/687,951 Granted*
2021
Smoothing conversational contexts for digital agents   *- 16/177,983 Granted*
2021

CONFERENCES

SEMANTiCS - *Speaker*

2022

The Socratic Digital Agent: persuasion in eCommerce with knowledge, logic, and machine learning

E-Stores lose sales due to the negative biases of consumers. While salespeople give proper reasons to change consumers' misbeliefs, it is problematic to address those issues in an online shop. In this talk, I will present how to combine semantic graphs with logic programming and symbolic machine learning to restore consumer confidence. The digital agent detects what problems users might have and offers them explanations and valid arguments for not worrying about, or why a given recommendation is more suitable than others.

CERTIFICATIONS

SAP Architect Curriculum

2022

Professional Scrum Master

2021

ITIL® Foundation Certificate in IT Service Management

2021