



Part A. PERSONAL INFORMATION

CV date	01/07/2024
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First name	Ernest		
Family name	Teniente López		
e-mail	ernest.teniente@upc.edu		
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-8890-9638		

A.1. Current position

Position	Full Professor (Catedrático de Universidad)		
Initial date	14-04-2010		
Institution	Universitat Politècnica de Catalunya (UPC)		
Department/Center		Dept. of Service and Information Systems Engineering	
Country	Spain		
Key words	Automated reasoning, ontologies, knowledge and service engineering		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
June 1993 – April 2010	Associate Professor / UPC
October 1989 – June 1993	Assistant Professor / UPC
September 1998 – February 2010	Tutor / UOC
January 2002 – April 2002	Visiting Post-Doc Researcher / Univ. di Roma Tre (Italy)
September 1996 – February 1997	Visiting Post-Doc Researcher / Politecnico di Milano (Italy)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado en Informática	Universitat Politècnica de Catalunya	1989
PhD in Computer Science	Universitat Politècnica de Catalunya	1992

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Ernest Teniente is a Full Professor in the Department of Service and Information Systems Engineering at the Polytechnic University of Catalonia (UPC), where he teaches subjects in software engineering and requirements engineering. Ernest has been actively researching in the field of software and database engineering for more than 30 years. His research focuses on the area of knowledge and service engineering, on topics such as the ontologies definition, automatic reasoning from ontologies, business processes modeling or the automatic code generation from ontologies.

He is the author of more than 90 publications in international journals and conferences, most of which in forums of high international prestige (<https://dblp.org/pid/t/ErnestTeniente>). To highlight just a few achievements, he proposed the first method for view updating which takes integrity constraint enforcement into account and proved its soundness and completeness. He also contributed on an efficient extension of this method for query containment checking and for the verification and validation of UML Conceptual Schemas with OCL Constraints, being both still today ones of the few existing proposals which are sound and complete. He also participated on the efficient implementation of SQL assertions in relational databases (being SQL assertions in the SQL standard since 1992, although no commercial tool implements them due to the inefficiency problems identified in our research). As a result of this contribution, he has also a patent: "Checking SQL Assertions" EP20382561.7 (Reference P5227EP00 – PCT requested), together with Xavier Oriol. All these techniques have served as a basis to solve related problems for different domains and specification



languages. They also lead to the implementation of a query containment algorithm for Entity SQL in Microsoft Research Redmond.

Since September 2020, Ernest Teniente is the Director of the inLab FIB (inlab.fib.upc.edu/en), the innovation laboratory of the Barcelona School of Informatics at the UPC, where he started leading innovation projects for the industry four years ago. Since then, he has led among others a one and a half years project with Oracle America Inc. to contribute to the implementation of SQL assertions for its new generation of autonomous databases. Part of the knowledge developed for solving such problem is currently under an Oracle's patent process. He also led the development of two innovation projects for Aizon.ai, a technology benchmark company for the US FDA, based on the use of ontologies as metamodels for retrieving and analysing invoked source code in different languages. Recently, he has led a project for Volkswagen Innovation Group in Wolfsburg (Germany) aimed at the prediction of battery consumption for the next generation of electric cars.

He collaborates with prestigious foreign research groups, highlighting among the most recent the collaboration with professors Giuseppe De Giacomo and Domenico Lembo (Università La Sapienza, Italy), professors Diego Calvanese and Marco Montali (Free University of Bozen-Bolzano, Italy), Professor Letizia Tanca (Politecnico di Milano, Italy), Professor Schahram Dustdar (TU Wien, Austria) or Professor Giansalvatore Mecca (Università della Basilicata, Italy). He also collaborates with various national research groups, through participation in national networks and coordinated projects.

He regularly participates in the Program Committees of various recognized international conferences such as CIKM (4 times), EDBT (4 times), CAiSE (12 times), BPM (5 times) or ER (15 times). He is also a reviewer for some of the most prestigious magazines in these areas. In addition, he has held various responsibilities, such as PC Chair (at CAiSE'2021, ICEIS 2015 and JISBD'2010), Program Board member (CAiSE 2019, 2020 and 2022), Organizing Committee Chair (ER'08), Workshop Chair (BPM'17, ECOOP'17 and CAiSE'05), Panel Chair (BPM 2020) or Tutorial Chair (CAiSE'13).

He has been an evaluator of National Research Plans and regional research plans, and also of foreign research evaluation agencies (such as the German DAAD, the Dutch NWO or the Italian VQR, for instance). He was also the President of the Commission for the Evaluation of the Teaching and Research Staff (CSAPDIU) of the UPC.

Principal Investigator of ten competitive research projects funded by the Ministry of Science and Innovation (or similarly named), Work Package leader of an EU-H2020 project and of more than ten innovation and research projects funded by the industry. He also leads the IMP research group (Information Modeling and Processing, imp.upc.edu), recognized and funded by the Generalitat de Catalunya. He has advised 7 PhD thesis and he has been the Director/Ponente of 115 Bachelor Degree Final Projects.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (*see the full list at: <https://dblp.org/pid/t/ErnestTeniente.html>*)

During the 2011-2023 period, Ernest Teniente has published 17 articles in journals indexed in the Journal Citation Reports (JCR) of the ISI Web of Knowledge, 13 of them are published in journals of the first or second quartile of his area (7 Q1 + 6 Q2). The 10 most recent articles published in the indexed journals with the highest impact (from most recent to oldest) are listed below:

1. Marc Vila, Maria-Ribera Sancho, Ernest Teniente, Xavier Vilajosana: Critical Infrastructure Awareness based on IoT Context Data. *Internet of Things Journal*. 23: 100855 (2023). Q1 - CS: *Information Systems*: 5,9.
2. Xavier Oriol, Ernest Teniente, Marc Maynou, Sergi Nadal: Generating Valid Test Data through Data Cloning. *Future Generation Computer Systems (FGCS)*. Vol. 144, July 2023, 179-191. Q1 - CS: *Theory and Methods*: 6,125.
3. Marc Vila, Víctor Casamayor, Shahram Dustdar, Ernest Teniente: Edge-to-cloud sensing and actuation semantics in the industrial Internet of Things. *Pervasive and Mobile Computing*. 87: 101699 (2022). Q2 - CS: *Information Systems*: 3,848.

4. Xavier Oriol, Giuseppe De Giacomo, Montserrat Estañol, Ernest Teniente: Embedding reactive behavior into artifact-centric business process models. *Future Generation Computer Systems (FGCS)*. Vol. 117, Abril 2021, 97-110. *Q1 - CS: Theory and Methods: 6,125*.
5. Montserrat Estañol, Jorge Munoz-Gama, Josep Carmona, Ernest Teniente: Conformance checking in UML artifact-centric business process models. *Software & Systems Modeling (SoSyM)* - 18(4): 2531-2555 (2019). *Q2 - CS: Software Engineering, impact factor: 1,876*.
6. Enrico Franconi, Alessandro Mosca, Xavier Oriol, Guillem Rull, Ernest Teniente: OCLFO-first-order expressive OCL constraints for efficient integrity checking. *Software & Systems Modeling (SoSyM)* - 18(4): 2655-2678 (2019). *Q2 - CS: Software Engineering, impact factor: 1,876*.
7. Montserrat Estañol, Maria-Ribera Sancho, Ernest Teniente: Ensuring the semantic correctness of a BAUML artifact-centric BPM. *Information & Software Technology* 93: 147-162 (2018). *Q1 - CS: Software Engineering, impact factor: 2,768*.
8. Xavier Oriol, Ernest Teniente: Simplification of UML/OCL schemas for efficient reasoning. *Journal of Systems and Software* 128: 130-149 (2017). *Q1 - CS: Software Engineering, impact factor: 1,424*.
9. Arne Bröring, Stefan Schmid, Corina Kim Schindhelm, Abdelmajid Khelil, Sebastian Käbisch, Denis Kramer, Danh Le Phuoc, Jelena Mitic, Darko Anicic, Ernest Teniente: Enabling IoT Ecosystems through Platform Interoperability. *IEEE Software*. 34(1): 54-61 (2017). *Q1 - CS: Software Engineering, impact factor: 2,879*.
10. G. Mecca, Guillem Rull, Donatello Santoro, Ernest Teniente: Ontology-based mappings. *Data and Knowledge Engineering*. 98: 8-29 (2015). *Q2 - CS: Information Systems, impact factor: 1,519*.

C.2. Conferences

In the last ten years, Ernest Teniente has published 21 papers in conferences that appear in relevant positions of the SCIE ranking (Classes 1 or 2; scie.lcc.uma.es/gii-grin-scie-rating), and are therefore considered as prestigious as compared to journals indexed in the first quartiles of the JCR. Among these conferences, the following should be highlighted: ACM Int. Conf. On the Management of Data (SIGMOD, 1 article, A ++), ACM Conf. on Information and Knowledge Management (CIKM, 2 articles, A +), Int. Semantic Web Conference (ISWC, 1 article), Int. Conf. On Advanced Information Systems Engineering (CAISE, 4 articles, A), Int. Conf. On Extending Database Technology (EDBT, 2 articles, A), Int. Conf. On Service Oriented Computing (ICSOC, 3 articles, A-) or Int. Conf. On Conceptual Modeling (ER, 5 articles, A- in the year of publication). The 10 most recent articles published in conferences with the highest impact (from most recent to oldest) are listed below:

1. M. Vila, M.R. Sancho, E. Teniente. "Modeling Context-Aware Events and Responses in an IoT Environment". *35th Int. Conf. on Advanced Information Systems Engineering (CAISE 2023)*: 71-87. *Rank: A*.
2. T.Koppelaars, X. Oriol, E. Teniente, S.Curto, E.Pujol. "UQJG: Identifying Transactions that Collaborate to Violate SQL Assertion". *30th ACM Conf. on Information and Knowledge Management (CIKM'21)*, pp. 3152-3156. *Rank: A+*.
3. Xavier Oriol, Giuseppe De Giacomo, Montserrat Estañol, Ernest Teniente: "Automatic Business Process Model Extension to Repair Constraint Violations". *17th Int. Conf. on Service Oriented Computing (ICSOC 2019)*: 102-118. *Rank: A-*.
4. Xavier Oriol, Ernest Teniente: "An Ontology-Based Framework for Describing Discoverable Data Services". *30th Int. Conf. on Advanced Information Systems Engineering (CAISE 2018)*: 220-235. *Rank: A*.
5. G. De Giacomo, D.Lembo, X.Oriol, D.F.Savo, E.Teniente: "Practical Update Management in Ontology-Based Data Access". *Int. Semantic Web Conference (1) 2017*: 225-242. *Rank: A+*.
6. G. De Giacomo, X.Oriol, M. Estañol, E. Teniente. "Linking Data and BPMN Processes to Achieve Executable Models". *29th Conf. on Advanced Inf. Systems Engineering (CAISE 2017)*. *Rank: A*.
7. G.Mecca, G.Rull, D.Santoro, E. Teniente. "GROM: a General Rewriter of Semantic Mappings". *19th Int. Conference on Extending Database Technology (EDBT2016)*: 592-595. *Rank: A*.



8. X.Oriol, E. Teniente, G.Rull. "TIN: a Tool for INcremental INTEgrity checking of Assertions in SQL Server". 19th *Int. Conference on Extending Database Technology (EDBT2016)*: 632-635. Rank: A.
9. M. Estañol, M.R. Sancho, E. Teniente. "Verification and Validation of UML Artifact-Centric Business Process Models". 27th *Int. Conf. on Advanced Information Systems Engineering (CAISE 2015)*: 47-63. Rank: A.
10. D. Calvanese, M.Montali, M.Estañol, E. Teniente. "Verifiable UML Artifact-Centric Business Process Models". 23rd *ACM Conf. on Information and Knowledge Management (CIKM'14)*. 2014, pp. 1289-1298. Rank: A+.
11. G.Rull, P.A.Bernstein, I. Garcia dos Santos, Y.Katsis, S.Melnik, E.Teniente. "Query Containment in Entity-SQL (Extended Abstract)". Proc. of the *ACM SIGMOD/PODS Conference – industrial track, 2013*, pp. 1169-1172. Rank: A++.

C.3. Research projects (last five years, competitive projects)

1. "SUDOQU: enSURING Data with Ontological QUALity". IPs: E. Teniente and MR Sancho. Funded by the Ministerio de Ciencia e Innovación, PID2021-127181OB-I00. Principal investigator. 2012 - 2025. Amount: 157.663€. State: active.
2. "SORT: Optimización Sostenible del Transporte de Rutas", IPs: E. Teniente and MP Linares. Funded by the Ministerio de Ciencia e Innovación, TED2021-132736B-I00. 2022-2024. Amount: 177.560€. Estado: active.
3. "REMEDIAL: Automated Reasoning, model execution and data analytics from ontologies". IPs: E. Teniente and MR Sancho. Funded by the Ministerio de Economía y Competitividad, TIN2017-87610- R. Principal investigator. 2018 - 2021. Amount: 160.930€. State: finished.
4. "i3-Market" IP: Martín Ramírez. EU-H2020 Project. 2020 - 2023. UPC-IMP group leader. 166.000€ managed by UPC-IMP. State: active.
2. "Information Modeling and Processing (IMP)". Financiado por la AGAUR-Generalitat de Catalunya, 2017-SGR-1749. Principal investigator. 2017 - 2021. Amount: 36.000 €. State: active.
3. "BIGIoT: Bridging the Interoperability Gap of the Internet of Things". IP: Jelena Mitic (Siemens). EU-H2020 Project. 2016 - 2018. WP5 leader: "Use Case Realization". Total amount: 8.000.000 €. 300.000 € (managed by UPC-IMP). State: finished.

C.4. Contracts, technological or transfer merits (most relevant ones)

1. Director of the inLab FIB (inlab.fib.upc.edu/en), the innovation laboratory of the Barcelona School of Informatics at the UPC.
2. "Approaches and Methods for a Predictive Operation Satrategy", granted by SEAT. Joint project with Volkswagen Innovation Group in Wolsfburg (Germany). December 2021 – November 2022. Funding: 180.000€. Principal investigator
2. "Extension and Refinement of SQL Assertion Serialization Algorithm" (UNIQUE 2), granted by Oracle America, Inc. (www.oracle.com). May 2020 – April 2021. Funding: 70.000\$ (58.000€). Principal investigator
3. "Computing the Join-Graph of the Universal Quantification Structure of a Generic SQL Assertion" (UNIQUE), granted by Oracle America, Inc. (www.oracle.com). June 2019 – May 2020. Funding: 120.000\$ (105.000€). Principal investigator.
4. "METRICS: METamodelling for Retrieving Invoked Source Code", granted by Bigfinite (<http://www.aizon.ai>). June 2019 – October 2020. Funding: 162.000€. Principal investigator.
5. "Assessment for the development of the Ethica project", granted by Bratia Global. October 2020-December 2021. Funding: 18.000€. Principal investigator.
6. "Checking SQL Assertions". Patent. Authors: X.Oriol, E.Teniente. Universitat Politècnica de Catalunya. EP20382561.7 (Reference P5227EP00 – PCT requested), 2020.