

Guillermo Jiménez-Díaz

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Facultad de Informática

Dept. Software Engineering and

Artificial Intelligence

C/Prof. Jose García Santesmases s/n

28040 Madrid (Spain)

Research Interest

Recommender Systems

- Matchmaking in videogames based on player behaviour
- Recommendations of Learning Objects (e-learning domain)
- Recommendations to groups

Virtual Learning Environments

- Object-oriented teaching

Education

2008 **Ph.D. in Computer Science**, Dept. Software Engineering and Artificial Intelligence, Complutense University of Madrid, April, 2008.

Title *Entornos virtuales basados en técnicas de aprendizaje activo para la enseñanza de la Orientación a Objetos* (In Spanish)

Virtual Environments based on active learning techniques to teach object-oriented design

Description It describes the process of transferring role-play sessions with CRC Cards, an active learning approach commonly employed to teach object-oriented design, into a virtual learning environment. A prototype of this environment called ViRPlay3D2 has been evaluated by students and instructors and it has been employed in classroom.

More info <http://gaia.fdi.ucm.es/projects/virplay/>

2004 **M.S. in Computer Science**, Dept. Software Engineering and Artificial Intelligence, Complutense University of Madrid, September, 2004.

2002 **Engineering degree in Computer Science**, Complutense University of Madrid, Spain, June, 2002.

2002 **Technical Engineering degree in Computer Science**, Complutense University of Madrid, Spain, June, 2000.

Academic Award Graduated with “Excellence” Diploma from Complutense University of Madrid

Professional Employment and Experience

Full-time affiliations

Since 2009 **Assistant Professor**, Dept. Software Engineering and Artificial Intelligence, Complutense University of Madrid.

2003–2008 **Teaching assistant**, *Dept. Software Engineering and Artificial Intelligence*, Complutense University of Madrid.

Short-term affiliations and fellowships

03/10 – 06/10 **Visiting researcher (Postdoctoral level)**, *Clarity: Centre of Sensor Web Technologies*, University College Dublin, Dublin, Ireland.

The goal of my work in Clarity was to investigate about data mining techniques and to apply them to Soccerbots gameplay metrics for characterizing player behaviours. These results will be employed in matchmaking techniques in videogames.

06/03 – 11/03 **Full-time researcher (predoctoral level)**, *Group for Artificial Intelligence Applications*, Dept. of Information Systems and Programming, Complutense University of Madrid.

During these 5 months I initiated my PhD project, working on the state of the art of case-based teaching applications. This work was associated to the funded research project TIC2002-01961, described below.

01/02 – 06/02 **Scholarship (undergraduate level)**, *Spanish Committee of Education and Science*, Complutense University of Madrid.

During these 6 months I collaborated as software developer in a research project about text categorization.

Participation in research projects and funded research groups

2011 **Funded Research group BSCH-CAM 921330**, *Group for Artificial Intelligence Applications*, Banco Santander Central Hispano – Complutense University of Madrid.

Total funds: 5174€

Role: group member

2009 – 2011 **(TSI-020110-2009-205)**, *Plataforma Middleware para el desarrollo de una nueva generación de Mundos Virtuales Sociales en 3D para Jugadores Casuales*, Spanish Committee for Industry, Tourism and Commerce.

Coordinated project with Virtual Toys, Atos Origin and Polytechnic University of Madrid

Duration: 36 months

Total funds: 284969€

Role: post-doctoral full-time researcher

2009 – 2011 **(TIN2009-13692-C03-03)**, *Next-CBR: Evolving CBR for multi-source experience and knowledge-rich applications*, Spanish Committee of Education and Science.

Duration: 36 months

Total funds: 148400€

Role: post-doctoral full-time researcher

2008 – 2010 **Funded Research group BSCH-CAM 921330**, *Group for Artificial Intelligence Applications*, Banco Santander Central Hispano – Complutense University of Madrid.

Total funds: 10340€

Role: group member

2006 – 2008 **(TIN2006-15202-C03-03)**, *ENVIRA: Entornos Virtuales Inteligentes para el Aprendizaje*, Spanish Committee of Education and Science.

Duration: 36 months

Total funds: 46000€

Role: predoctoral / post-doctoral full-time researcher

2006 – 2007 **Funded Research group UCM-CAM 910494**, *Group of Software Engineering and Artificial Intelligence*, Complutense University of Madrid – Regional Government of Madrid.

Total funds: 69120€

Role: group member

- 2005 – 2006 **(TIN2005-09382-C02-01)**, *Arquitectura para el Desarrollo e Integración de Simuladores Interactivos en el Aprendizaje*, Spanish Committee of Education and Science.
 Duration: 12 months
 Total funds: 14280€
 Role: predoctoral full-time researcher
- 2004 – 2005 **(TIC2002-01961)**, *Documentación de Armazones Basada en Casos y Aprendizaje Mediante Ejemplos*, Spanish Committee for Science and Technology.
 Duration: 36 months
 Total funds: 115789€
 Role: predoctoral full-time researcher

Teaching

- Since 2008 **Courses as Lecturer**, *Dept. Software Engineering and Artificial Intelligence*, Complutense University of Madrid.
- Object-Oriented Programming: 2010–2011
 - Programming (CS2): 2008–2010
 - Programming (CS3): 2009–2011 (taught for one term)
 - Knowledge-based application systems engineering: 2010–2011 (taught for one term)
 - Database Systems: 2008–2009 (taught for one term)
- 2003 – 2008 **Courses as teaching assistant**, *Dept. Software Engineering and Artificial Intelligence*, Complutense University of Madrid.
- Programming (CS1): 2003–2006, 2007–2008
 - Programming (CS2): 2004–2006
 - Programming (CS3): 2007–2008
 - Design Patterns: 2004–2007
 - Database Systems: 2003–2004
 - Knowledge-based application systems engineering: 2005–2007
 - Genetic Algorithms: 2005–2006
 - Compilers: 2006–2008

Teaching related to game development

- Since 2004 **Master on Videogame Development**, Complutense University of Madrid, Spain.
 During the seven editions of this Master Degree I imparted different course sessions in game architectures, C++ for game development, networking and an introduction to the game engine employed during the course, Nebula Device. Additionally, every edition I have supervised the development of a videogame that the students have to create for completing the course.
- Advisor The supervised games are available at <http://www.fdi.ucm.es/juegos3d/games.html>:
- 2004-05: Toshi. El imperio de los 3 soles (The three sun empire)
 - 2005-06: Fuzzion
 - 2006-07: Shadow of past
 - 2007-08: Blinds
 - 2008-09: ¿Has visto el signo amarillo? (Did you see the yellow sign?)
 - 2009-10: Stardium Space Arena
 - 2010-11: Metal Monster
- 2004 – 2006 **Complutense Summer School**, *Complutense University of Madrid*, Spain.
 Game development (2004): 5 hours
 Game development (2005): 10 hours
 Advanced C++ programming for Windows (2005): 18 hours

Game development (2006): 13 hours

2009 **Oviedo Summer School**, *University of Oviedo, Oviedo, Spain.*

Game development: 10 hours

Distance Learning

Since 2005 **Cursos de Formación en Informática (Courses in Computer Skills)**, *Virtual Campus, Complutense University of Madrid, Madrid.*

Since 2005 I work as Teaching Coordinator and instructor of distance learning courses about Microsoft Word using the Virtual Campus from the Complutense University of Madrid.

Funded Learning Projects

2007 **EVALTIC2: Mejora e implementación de la evaluación para valorar la influencia de las TICs en el aprendizaje**, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 3800€

Role: Project Leader

Entornos virtuales inmersivos para la enseñanza de patrones de diseño, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2900€

Role: Project member

Curso on-line adaptativo para la enseñanza multidisciplinar de la programación en el campus virtual, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2900€

Role: Project member

2006 **EVALTIC: Diseño de una evaluación para valorar la influencia de las TICs en el aprendizaje**, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2600€

Role: Project member

Métodos activos de enseñanza de patrones de diseño, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2600€

Role: Project member

Aprendizaje de programación guiado por problemas en el campus virtual: un alcance multidisciplinar, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2600€

Role: Project member

2005 **Desarrollo e integración de juegos interactivos en el aprendizaje**, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 2700€

Role: Project member

Sistemas de comprobación de ejercicios para asignaturas de programación de computadores, *Funded by Complutense University of Madrid.*

Duration: 10 months

Total funds: 3300€

Role: Project member

Virtualización de casos prácticos para asignaturas de programación en entorno multidisciplinar, Funded by Complutense University of Madrid.

Duration: 10 months

Total funds: 2700€

Role: Project member

Selected Publications

Journals

- 2011 Guillermo Jiménez-Díaz, Pedro A. González-Calero and Mercedes Gómez-Albarrán, Role play virtual worlds for teaching object oriented design: the ViRPlay development experience (2011), in: *Software: Practice and Experience*, In Press.
Almudena Ruiz-Iniesta, Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán, A Hybrid User-centered Recommendation Strategy Applied to Repositories of Learning Objects (2011), in: *Int. J. of Web Based Communities*, In Press.
- 2010 Almudena Ruiz-Iniesta, Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán, Personalización en Recomendadores Basados en Contenido y su Aplicación a Repositorios de Objetos de Aprendizaje (2010), in: *IEEE-RITA*, 5(1): 31–38.
- 2009 Mercedes Gómez-Albarrán and Guillermo Jiménez-Díaz. Recommendation and students' authoring in repositories of learning objects: A case-based reasoning approach (2009), in: *International Journal of Emerging Technologies in Learning*, 4(1):35–40.
- 2008 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. Teaching GoF design patterns through refactoring and role-play (2008) *International Journal of Engineering Education*, 24(4):717–728.
- 2005 Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán. Una revisión de los aspectos clave en el diseño de los sistemas de enseñanza basada en casos. *Revista Iberoamericana de Inteligencia Artificial* (2005), 9(27):7–19.
Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. Software behaviour understanding supported by dynamic visualization and role-play. *SIGCSE Bulletin* (2005), 37(3):54–58.
- 2004 Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán. La documentación de frameworks frente a las dificultades de sus usuarios. *Novatica* (2004), nov-dic(172):58–63.

Peer-reviewed conference papers

- 2011 Guillermo Jiménez-Díaz, Héctor D. Menéndez, David Camacho, and Pedro A. González-Calero. Predicting performance in team games. the automatic coach. In *ICAART 2011. 3rd International Conference on Agents and Artificial Intelligence*, volume 1, pages 401–406. SciTePress, January 2011.
Lara Quijano-Sánchez, Juan A. Recio-García, Belén Díaz-Agudo, and Guillermo Jiménez-Díaz. Happy movie: A group recommender application in facebook. In *24th International FLAIRS Conference*, in press. AAAI Press, May 2011.
- 2010 Marco A. Gómez-Martín, Guillermo Jiménez-Díaz, and Pedro P. Gómez-Martín. Test de unidad para la corrección de prácticas de programación, ¿una estrategia win-win? In *XVI Jornadas de Enseñanza Universitaria de la Informática*, pages 51–58, July 2010.
- 2009 Juan A. Recio-García, Guillermo Jiménez-Díaz, Antonio A. Sánchez-Ruiz and Belén Díaz-Agudo, Personality Aware Recommendations to Groups, in: 3rd ACM Conference on Recommender Systems, New York, USA, pages 325–328, ACM Press, October 2009

- Almudena Ruiz-Iniesta, Guillermo Jiménez-Díaz, and Mercedes Gómez-Albarrán. Recommendation in repositories of learning objects: A proactive approach that exploits diversity and navigation-by-proposing. In *9th IEEE International Conference on Advanced Learning Technologies*, pages 543–545. IEEE Computer Society, July 2009.
- Marco A. Gómez-Martín, Guillermo Jiménez-Díaz, and Javier Arroyo-Gallardo. Teaching design patterns using a family of games. In *14th ACM-SIGCSE Annual Conference on Innovation and Technology in Computer Science*, pages 268–272. ACM Press, July 2009.
- Mercedes Gómez-Albarrán, Guillermo Jiménez-Díaz, Marta López Fernández, Marco A. Gómez-Martín, Alberto Díaz-Esteban, Luis Hernández-Yáñez and Almudena Ruiz-Iniesta, Example-supported learning of programming concepts: from free-access to knowledge-controlled routing in repositories deployed in a Virtual Campus, in: XI International Symposium on Computers in Education (SIIE 2009), Coimbra, Portugal. October 2009.
- Almudena Ruiz-Iniesta, Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán, Promoting Strong Personalization in Content-based Recommendation Systems of Learning Objects, in: XI International Symposium on Computers in Education (SIIE 2009), Coimbra, Portugal, October 2009.
- Almudena Ruiz-Iniesta, Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán, User-Adaptive Recommendation Techniques in Repositories of Learning Objects: Combining Long-Term and Short-Term Learning Goals, in: EC-TEL 2009, Nice, France, pages 645-650, Springer Verlag, 2009.
- 2008 Belén Díaz-Agudo, Guillermo Jiménez-Díaz, and Juan A. Recio-García. How to teach semantic web?: a project-based approach. In *Procs. of the 13th Annual Conference on Innovation and Technology in Computer Science Education*, pages 98–102. ACM Press, 2008.
- Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. Role-play virtual environments: Recreational learning of software design. In *Times of Convergence. Technologies Across Learning Contexts, 3rd European Conference on Technology Enhanced Learning, EC-TEL 2008, Maastricht, The Netherlands.*, volume 5192 of LNCS, pages 27–32, Springer, 2008.
- Marta López Fernández, Mercedes Gómez-Albarrán, and Guillermo Jiménez-Díaz. Diseño de una evaluación para analizar el impacto de las tics en el aprendizaje. In *3rd Conferencia Ibérica de Sistemas y Tecnologías de Información*, pages 155–166, June 2008.
- Mercedes Gómez-Albarrán and Guillermo Jiménez-Díaz. Recommendation and students' authoring in repositories of learning objects: A case-based reasoning approach. In *X Simposio Internacional de Informática Educativa SIIE 2008*, pages 227–232, October 2008.
- Belén Díaz-Agudo, Guillermo Jiménez-Díaz and Juan A. Recio-García, ¿Cómo enseñar la Web Semántica?, in: Procs. JENUI 2008, Jornadas de enseñanza universitaria de la informática, Granada, Spain, pages 523 – 530, AENUI, 2008.
- 2007 Guillermo Jiménez-Díaz and Belén Díaz-Agudo. SB Tournament: Competiciones de robots en asignaturas de inteligencia artificial. In *Procs. of the 9th edition of the International Symposium on Computers in Education (SIIE 2007)*, November 2007.
- Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. Pass the ball: Game-based learning of software design. In *6th International Conference on Entertainment Computing*, volume 4740 of LNCS, pages 49–54. Springer, September 2007.

- Guillermo Jiménez-Díaz, Pedro A. González-Calero, and Mercedes Gómez-Albarrán. Using Role-Play virtual environments to learn software design. In *European Conference on Games-Based Learning*, pages 143–151. Academic Conferences, 2007.
- 2006 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. "Before and After": An active and collaborative approach to teach design patterns. In *8th International Symposium on Computers in Education*, volume 1, pages 272–279. Servicio de Imprenta de la Universidad de León, October 2006.
- 2005 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. Software behaviour understanding supported by dynamic visualization and role-play. In *10th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, pages 54–58. ACM Press, June 2005.
- Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. Understanding object-oriented software through virtual role-play. In *5th IEEE International Conference on Advanced Learning Technologies*, pages 875–877. IEEE Computer Society, July 2005.
- Marco A. Gómez-Martín, Pedro P. Gómez-Martín, Pedro A. González-Calero, and Guillermo Jiménez-Díaz. JV2M, un sistema de enseñanza de la compilación de Java. In Manuel Ortega-Cantero, editor, *I Simposio Nacional de Tecnologías de la Información y de las Comunicaciones en la Educación, SINTICE 2005*, pages 259–266. Thomson, September 2005.
- Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. Visualización y role-play en la enseñanza de la programación orientada a objetos. In *VII Simposio Internacional de Informática Educativa*, pages 119–124. Escola Superior de Educação de Leiria, November 2005.
- 2004 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. Applying case-based teaching to object-oriented framework training. In *2nd European Starting AI Researcher Symposium, in 16th European Conference in Artificial Intelligence*, pages 235–240. IOS Press, August 2004. 22-27 August.

Book chapters

- 2008 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. *Visualization and Role-play to Teach Object-Oriented Programming*, In *Mendes, Pereira and Costa, Computers and Education* pages 167–178. Springer, London, UK, 2008.

Peer-reviewed Workshops and Poster papers

- 2005 Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, Marco A. Gómez-Martín, and Pedro A. González-Calero. ViRPlay: Playing roles to understand dynamic behavior. In *9th Workshop on Pedagogies and Tools for the Teaching and Learning of Object Oriented Concepts, at 19th European Conference on Object Oriented Programming*, July 2005.
- 2004 Guillermo Jiménez-Díaz and Mercedes Gómez-Albarrán. A case-based approach for teaching frameworks. In *PhD-Workshop at 18th European Conference on Object-Oriented Programming*, June 2004.
- Guillermo Jiménez-Díaz, Mercedes Gómez-Albarrán, and Pedro A. González-Calero. Underframe: Understanding object-oriented frameworks using a case-based teaching approach. In *Poster session at 18th European Conference on Object-Oriented Programming*, June 2004.

Professional service

Editorial and program committee member

- 2011 **Editorial Advisory Board**, *Educational Recommender Systems and Technologies: Practices and Challenges*.
Book edited by Olga Santos and Jesus Boticario, and published by IGI Global.
- 2011 **Program Committee**, *Special Issue on: "Recommender Systems to Support the Dynamics of Virtual Learning Communities"*.
International Journal of Web Based Communities.

Organizing activities

- 2010 – 2011 **Member Organizing Committee**, *IDEAME*, Nintendo and Complutense University of Madrid, Madrid, Spain.
Member of the organizing committee of the two editions of IDEAME, the Meeting of young game developers, organized by Nintendo and Complutense University of Madrid.
- 2009 – 2011 **Member Organizing Committee**, *Global Game Jam*, Complutense University of Madrid, Madrid, Spain.
Member of the organizing committee of the three editions of Madrid Gamejam, one of the spanish venues of Global Game Jam
- 2009 – 2010 **Member Organizing Committee**, *SWERC*, ACM ICPC Southwestern European Regional Contest, Madrid, Spain.
Member of the organizing committee of two editions of the Southwestern Europe Regional International Collegiate Programming Contest organized by ACM.
- 2004 **Member Organizing Committee**, *7th European Conference on Case-Based Reasoning*, Madrid, Spain.

Student advising

- Since 2009 **Ph.D Student advisor**, *Almudena Ruiz Iniesta*.
Almudena Ruiz Iniesta is a Ph.D. student and full-time predoctoral researcher in TSI-020110-2009-205 research project. She is working on the use of recommendation techniques in repositories of learning objects.
- 2009 **M.S. Thesis Student advisor**, *Almudena Ruiz Iniesta*, Estrategias de recomendación aplicadas a repositorios de recursos educativos, Complutense University of Madrid.

Languages

- Spanish **Native language**
English **Fluent**
German **Moderate**

Referees

Pedro A. González Calero (pedro@sip.ucm.es)

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Leader of the research Group for Artificial Intelligence Applications and member of the IFIP Technical Committee on Entertainment Computing. He was also my Ph.D. Advisor.

Luis Hernández Yáñez (luisy@fdi.ucm.es)

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