

# José A. Ruipérez Valiente

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## Research Interests

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Learning Analytics, Game-based Assessment, Educational Technologies, Artificial Intelligence in Education, Human-Computer Interaction, Applied Data Science, Computational Social Science.

## Biosketch

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I completed my B.Eng and M.Eng in Telecommunications Engineering, and I received my Ph.D. in learning analytics and educational data mining from Universidad Carlos III of Madrid while working as a researcher at IMDEA Networks Institute. In each one of these three degrees, I was a recipient of an Extraordinary Award for the Best Academic Transcript of my class. During this time, I completed two research periods of three months each, the first one at the Massachusetts Institute of Technology (MIT) in RELATE lab with David E. Pritchard and the second one at the University of Edinburgh with Dragan Gašević. Then, I completed a postdoctoral appointment at the MIT Teaching Systems Lab with Justin Reich, at the MIT Playful Journey Lab with Yoon Jeon Kim, and at the MIT Education Arcade with Eric Klopfer, and still remain affiliated and actively collaborating with them. I also held industry appointments at Multimedia Vocento as audiovisual intern, Accenture as software engineer, and ExoClick as data scientist, combining experience in academia, research institutions and business companies. Since July 2019, I have been a senior researcher funded by highly competitive Spanish federal fellowships at the Information and Communications Engineering Department of the University of Murcia. Moreover, in July 2021, I started as Associate Professor at the Software Engineering and Artificial Intelligence Department of the Complutense University of Madrid, but I had to request a leave of absence due to personal reasons.

During my research I focused on developing student modeling methods, visualization dashboards to support students and instructors, novel machine learning applications in education, and on digital assessment using data analytics, AI, multimodal data, and novel interactive environments. My research has been highly successful, as I have received more than 20 academic/research awards and fellowships (such as the BBVA Award as Outstanding Young CS Researcher or a Humboldt Research Fellowship). Moreover, I have co-authored over 80 scientific publications in high impact venues (like for example Science, Computers & Education, Computers in Human Behavior, or Future Generation Computer Systems). I have currently received more than 1500 citations and have a h-index of 17. This work has been part of the results obtained participating in 17 funded projects, as principal investigator in three of them and work package leader in another one. He is very active within the professional community and has delivered over 10 invited talks/workshops, over 10 press releases and interviews, has been part of the scientific program committee of over 15 conferences/events and has reviewed for more than 30 journals.

## Education

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### Academic

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<b>Massachusetts Institute of Technology</b>	<b>Boston</b>
<i>Postdoctorate (P.D.) in Learning Analytics in MOOCs and Game-based Assessment</i>	2018–2019
<b>Universidad Carlos III of Madrid</b>	<b>Madrid</b>
<i>Doctor of Philosophy (Ph.D.) in Learning Analytics, Cum Laude, International</i>	2014–2017
<b>Universidad Carlos III of Madrid</b>	<b>Madrid</b>
<i>Master of Science (M.Sc.), Telematics Engineering, GPA: 8,48/10</i>	2013–2014
<b>Universidad Carlos III of Madrid</b>	<b>Madrid</b>
<i>Master of Engineering (M.Eng.), Telecommunication Engineering, Highest GPA</i>	2011–2013
<b>Universidad Católica San Antonio of Murcia</b>	<b>Murcia</b>
<i>Bachelor of Engineering (B.Eng.) in Telecommunication Systems, Highest GPA</i>	2007–2010

### Additional training

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- Specialization in Machine Learning via Coursera platform (2016). About 24 weeks, 4 courses, 120 hours. From July 2016 to December 2016. University of Washington.
- Specialization in Data Science via Coursera platform (2015). About 40 weeks, 10 courses, 200 hours. From July 2015 to April 2016. Johns Hopkins University.

## Experience

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### Research & Academia Appointments

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<b>Complutense University of Madrid</b>	<b>Madrid</b>
<i>Associate Professor (Profesor Contratado Doctor)</i>	07/2021 – Present
<b>University of Murcia</b>	<b>Murcia</b>
<i>Senior Researcher</i>	07/2019 – Present
<b>Massachusetts Institute of Technology (MIT)</b>	<b>Cambridge (MA)</b>
<i>Postdoctoral Associate</i>	04/2018 – 06/2019
<b>ExoClick</b>	<b>Barcelona</b>
<i>Data Scientist</i>	05/2017 – 03/2018
<b>Institute IMDEA Networks and Universidad Carlos III of Madrid</b>	<b>Madrid</b>
<i>Research Assistant and PhD candidate</i>	01/2014 – 05/2017
<b>Universidad Carlos III of Madrid</b>	<b>Madrid</b>
<i>Research Assistant</i>	07/2012 – 01/2014
<b>Universidad Católica San Antonio of Murcia</b>	<b>Murcia</b>
<i>Research Intern</i>	03/2010 – 06/2010

### Honorary & Visiting Positions

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<b>Massachusetts Institute of Technology (MIT)</b>	<b>Cambridge (MA)</b>
<i>Research Affiliate</i>	07/2019 – 06/2021
<b>University of Edinburgh</b>	<b>Edinburgh</b>
<i>Visiting Researcher</i>	09/2016 – 12/2016

**Massachusetts Institute of Technology (MIT)***Visiting Researcher***Cambridge (MA)***06/2015 – 9/2015***Industry****Accenture Technology Solutions***Software Engineer***Madrid***12/2010 – 09/2011***Multimedia Communications Vocento***TV and Radio Technical Intern***Murcia***06/2010 – 12/2010***Awards, Honors and Fellowships****Awards**

- Outstanding Young Computer Science Researcher for my contributions to artificial intelligence and data analytics to understand human behavior in online educational environments issued by the Spanish Computer Science Association (SCIE) and BBVA Foundation [country-wide].
- My Ph.D. thesis has received the following four awards:
  - Best PhD thesis award in "Technology and Education" sponsored by Telefonica Foundation, granted by the Official College of Telecommunications Engineers [country-wide].
  - Extraordinary Doctoral Award from Universidad Carlos III of Madrid to one of the best Ph.D. Thesis in Telematics Engineering during years 2016-2018 [degree-wide].
  - Award of the Spanish Chapter of the IEEE Education Society for Best doctoral thesis in technological applications in the field of education [country-wide].
  - eMadrid 2018 award to the best PhD thesis in research or development of educational technologies [country-wide].
- Received an Excellent Alumni award for my excellent career development issued by the Social Council of Universidad Carlos III of Madrid [university-wide].
- Collaborator at the Best Pedagogical Innovation Project Award at UC3M [university-wide].
- My M.Eng. thesis has received four awards:
  - Best final degree or MT Award "in new services, applications and digital business models" sponsored by Accenture, granted by COIT-AEIT [country-wide]
  - Award of the Spanish Chapter of the IEEE Education Society for Best final degree project or MT in technological applications in the field of education [country-wide]
  - eMadrid 2015 Award for Best final degree project or MT on research or development of educational technologies [country-wide]
  - Accenture Award for best MT in Telecommunications Engineering in the academic year 2012/2013 at the Universidad Carlos III de Madrid [degree-wide].
- M.Eng. Telecommunications Engineering - Outstanding Graduate of the Year Award and Best Academic Transcript (2011-2013) [degree-wide].
- B.Eng. in Telecommunication Systems - Outstanding Graduate of the Year Award and Best Academic Transcript (2006-2010) [degree-wide].

**Honors**

- The newspaper La Verdad de Murcia recognizes me as one of the 20 most noteworthy persons from Murcia (1.5 million inhabitants) in 2018 due to my accomplishments during the year [region-wide].

**Scholarships & Fellowships**

- Juan de la Cierva 'Incorporación' competitive fellowship from the Ministry of Science and Innovation of Spain (acceptance rate below 15%) (2021).

- Humboldt competitive Research Fellowship from the Alexander von Humboldt Foundation (acceptance rate below 25%) (2021).
- Juan de la Cierva 'Formación' competitive fellowship from the Ministry of Science, Innovation and Universities of Spain (acceptance rate below 15%) (2019).
- Data Consortium Fellowship from the University of Wisconsin-Madison (\$1.500) (2018).
- Scholarship from EATEL to assist to the 12th Joint European Summer School on Technology Enhanced Learning in Estonia (2016).
- I earned a full fellowship (all fees and salary included) from Institute IMDEA Networks to conduct my MSc and PhD in Telematics Engineering (2014).

### **Paper Awards and Nominations.....**

- Bester poster award of LAK 19 conference for paper [C17].
- Paper [J6] was featured by Wiley as one of the best papers in 2017 from Wiley journals.
- Honorable Mention at ACM Learning at Scale 2016 for paper [C12].
- Runner up to the best demonstration paper award for paper [C8] at EC-TEL 2015.
- Paper [C6] was nominated for best full paper award at EC-TEL 2014.

### **Media Coverage and Press**

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Some news talking about me or my work:

- Interview in newspaper 'La verdad' - [Link](#)
- News about awards and stuff: University UCAM – eMadrid network – Murcia.com IMDEA Networks 1 – IMDEA Networks 2
- Popular TV Murcia interview - [Video](#)
- Young CS Researcher Awards: [Video](#) – FBBVA – SCIE – La Vanguardia – Europa Press – EFE Futuro – Economista – The Objective – Expansion
- Interview for MIT Open Learning - [Link](#)
- Onda Regional de Murcia Radio interview - [Link](#)
- Interview for BBVA Foundation - [Link](#)
- Interview as one of the 20 most noteworthy persons from Murcia in 2018 - [Link](#)
- Several international press talking about our article [J13]: Harvard Magazine – EdSurge – e-Literate – InsideHighered – El Mercurio – Science Presse – University World News – Financial Times
- Our research about bots in Twitter in 2019 Spanish Elections - 20 Minutos – Agencia Sinc – El Espanol – Europa Press – Genbeta – La Razon – La Sexta – La Vanguardia – La Verdad – Nueva Tribuna – University of Murcia – El País
- Several interviews and press releases about two projects MIT-Spain “la Caixa” projects - University of Murcia – La Verdad – 20 minutos – La Vanguardia
- Onda Regional de Murcia Radio interview about cookies and Google - [Link](#)

### **Publications**

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Google Scholar – ResearchGate – ORCID – Publons – Scopus – dblp.

### **Overview.....**

Current summary of publications include 34 articles in journals, 32 in proceedings from international conferences, 3 in national conferences, 3 book chapters and 3 edited volumes. Moreover, I currently

have 9 journal publications submitted under review.

#### JCR-indexed Journals.....

- J29 **Ruipérez-Valiente, J. A.**, Jaramillo-Morillo, D. A., Joksimovic, S., Kovanovic, V., Muñoz-Merino, P. J, Gasevic, D. (2021). Data-driven Detection and Characterization of Communities of Accounts Collaborating in MOOCs. *Future Generation Computer Systems*, 125, pages 590-603. Impact factor as of 2020: 7.187, JCR(7/110), Q1, category: computer science, theory, & methods – download - ext link.
- J28 **Ruipérez-Valiente, J. A.**, Gomez, M., Martinez, P. A., & Kim, Y. J (2021). Ideating and Developing a Visualization Dashboard to Support Teachers Using Educational Games in the Classroom. *IEEE Access*, 9, pages 83467-83481. Impact factor as of 2020: 3.367, JCR(94/273), Q2, category: engineering, electrical and electronic – download - ext link.
- J27 Karp, S., **Ruipérez-Valiente, J. A.** & Alexandron, G., Defining and Measuring Completion and Assessment Biases with Respect to English Language and Development Status: Not All MOOCs are Equal. *International Journal of Educational Technology in Higher Education*, 18, Article 41. Impact factor as of 2020: 4.944, JCR(18/264), Q1, category: education & education research – download - ext link.
- J26 Gomez, M., **Ruipérez-Valiente, J. A.**, Martinez, P. A., & Kim, Y. J. (2021). Applying Learning Analytics to Detect Sequences of Actions and Common Errors in a Geometry Game. *Sensors*, 21(4):1025. 2021. Impact factor as of 2019: 3.576, JCR(14/64), Q1, category: instruments & instrumentation – download - ext link.
- J25 Pastor-Galindo, J., Zago, M., Nespoli, P., Lopez Bernal, S., Huertas Celdrán, A., Gil Pérez, M., **Ruipérez-Valiente, J. A.**, Martínez Pérez, G., & Gómez Mármol F. (2020). Spotting political social bots in Twitter: A use case of the 2019 Spanish general election. *IEEE Transactions on Network and Service Management*, 17, 4, pages 2156-2170. Impact factor as of 2019: 4.195, JCR(47/162), Q2, category: computer science, information systems – ext link – download.
- J24 **Ruipérez-Valiente, J. A.**, Garcia S., Reich, J. & Castro M. (2020). The unMOOCing Process: Extending the Impact of MOOC Educational Resources as OERs. *Sustainability*, 12, 7346. Impact factor as of 2020: 3.251, JCR(60/125), Q2, category: environmental studies – ext link – download.
- J23 **Ruipérez-Valiente, J. A.** & Kim, Y. J. Effects of Solo vs. Collaborative Play in a Digital Learning Game on Geometry: Results from a K12 Experiment (2020). *Computers & Education*, 159, 104008. Impact factor as of 2020: 8.538, JCR(7/112), Q1, category: computer science, interdisciplinary applications –ext link – download.
- J22 Rodriguez-Robles, J., Martin, A., Garcia S., **Ruipérez-Valiente, J. A.**, Castro M. (2020). Autonomous Sensor Network for Rural Agriculture Environments, Low Cost, and Energy Self-Charge. *Sustainability*, 12, 5913. Impact factor as of 2020: 3.251, JCR(60/125), Q2, category: environmental studies –ext link – download.
- J21 Expósito-Ventura, M. **Ruipérez-Valiente, J. A.**, and & Forné, J. (2020). Analyzing and Testing Viewability Methods in an Advertising Network. *IEEE Access*, 8, pages 118751-118761. Impact factor as of 2020: 3.367, JCR(94/273), Q2, category: engineering, electrical and electronic – download – ext link.
- J20 Jaramillo-Morillo, D. A., **Ruipérez-Valiente, J.A.**, Solarte, M. and Ramírez, G. Identifying and Characterizing Students Suspected of Academic Dishonesty in SPOCs for Credit through Learning Analytics. *International Journal of Educational Technology in Higher Education*, 17, 45 (2020). Impact factor as of 2020: 4.944, JCR(18/264), Q1, category: education & education research – download - ext link.
- J19 Huertas Celdrán, A., **Ruipérez-Valiente, J.A.**, García Clemente, F.J., Rodríguez-Triana, M.J.,

- Shankar, S.K. and Martínez Pérez, G. A Scalable Architecture for the Dynamic Deployment of Multimodal Learning Analytics Applications in Smart Classrooms. *Sensors* 2020, 20, 2923. Impact factor as of 2019: 3.576, JCR(14/64), Q1, category: instruments & instrumentation – download - ext link.
- J18 Loro-Garcia, F., Garcia S., **Ruipérez-Valiente, J. A.**, San Cristobal, E. and Castro M. (2020). Reviewing and Analyzing Peer Review Inter-Rater Reliability in a MOOC Platform. *Computers & Education*, 103894. Impact factor as of 2020: 8.538, JCR(7/112), Q1, category: computer science, interdisciplinary applications – download - ext link.
- J17 **Ruipérez-Valiente, J. A.**, Gaydos, M., Rosenheck L., Kim Y.J., & Klopfer E. (2020). Patterns of Engagement in an Educational Massive Multiplayer Online Game: A Multidimensional View. *IEEE Transactions on Learning Technologies*, 13(4), pages 648–661. Impact factor as of 2020: 3.720, Q1, JCR(50/264), category: education & educational research – download - ext link.
- J16 Littenberg-Tobias, J., **Ruipérez-Valiente, J. A.**, & Reich, J. (2020). Studying Learner Behavior in Online Courses With Free-Certificate Coupons: Results From Two Case Studies (2020). In *International Review of Research in Open and Distributed Learning*, 21(1), pages 1-22. Impact factor as of 2020: 2.747, JCR(96/264), Q2, category: education & educational research – download - ext link.
- J15 Belmonte, F. J., Martin, S., Sancristobal E., **Ruipérez-Valiente, J. A.** & Castro M. (2020). Overview of embedded systems to build reliable and safe ADAS and AD systems. *IEEE Intelligent Transportation Systems Magazine* (In press). Impact factor as of 2020: 3.419, JCR(89/273), Q2, category: engineering, electrical & electronic – download - ext link.
- J14 **Ruipérez-Valiente, J. A.**, Halawa S., Slama R. & Reich, J. (2020). Using multi-platform learning analytics to compare regional and global MOOC learning in the Arab world. In *Computers & Education*, 103776. Impact factor as of 2020: 8.538, JCR(7/112), Q1, category: computer science, interdisciplinary applications – download - ext link.
- J13 Reich, J. and **Ruipérez-Valiente, J. A.**. The MOOC Pivot. *Science* 363(6423), pages 130-131. 2019. Impact factor as of 2019: 41.845, JCR(2/71), Q1, category: multidisciplinary sciences – download - ext link.
- J12 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. Improving the prediction of learning outcomes in educational platforms including higher level interaction indicators. *Expert Systems*, 35(6) (2018). Impact factor as of 2018: 1.505, JCR(50/108), Q2, category: computer science, theory & methods – download - ext link.
- J11 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Alexandron, G., and Pritchard, D. E. Using Machine Learning to Detect "Multiple-Account" Cheating and Analyze the Influence of Student and Problem Features. *IEEE Transactions on Learning Technologies*, 12(1), pages 112-122 (2017). Impact factor as of 2017: 1.869, JCR(64/238), Q2, category: education & educational research – download - ext link.
- J10 Muñoz-Merino, P. J., Méndez Rodríguez, E., Delgado Kloos, C., & **Ruipérez-Valiente, J. A.** (2017). Design, Implementation and Evaluation of SPOCs at the Universidad Carlos III de Madrid. *Journal of Universal Computer Science*, 23(2), 167–186. Impact factor as of 2017: 1.066, JCR(66/104), Q3, category: computer science, theory & methods – download - ext link.
- J9 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2017). Detecting and Clustering Students by their Gamification Behavior with Badges: A Case Study in Engineering Education. *The International Journal of Engineering Education*, 33(2), 816–830. Impact factor as of 2017: 0.575, JCR(73/86), Q4, category: engineering, multidisciplinary – download - ext link.
- J8 Alexandron, G.<sup>†</sup>, **Ruipérez-Valiente, J. A.**<sup>†</sup>, Chen, Z., Pedro J. Muñoz-Merino, & Pritchard, D.

E. (<sup>†</sup>same author contribution, 2017) Copying@Scale: Using Harvesting Accounts for Collecting Correct Answers in a MOOC. *Computers & Education*, 108, 96–114. Impact factor as of 2017: 4.538, JCR(7/105), Q1, category: computer science, interdisciplinary applications – download - ext link.

- J7 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Pijera Díaz, H. J., Santofimia Ruiz, J., & Delgado Kloos, C. (2017). Evaluation of a Learning Analytics Application for Open edX Platform. *Computer Science and Information Systems*, 14(1), 51–73. Impact factor as of 2017: 0.613, JCR(93/104), Q4, category: computer science, software engineering – download - ext link.
- J6 Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Delgado Kloos, C., Auger, M. A., Briz, S., Castro, V. De, & Santalla, S. N. (2017). Flipping the Classroom to Improve Learning with MOOCs Technology. *Computer Applications in Engineering Education*, 25(1), 15–25. Impact factor as of 2017: 1.153, JCR(50/86), Q3, category: engineering, multidisciplinary – download - ext link.
- J5 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Gascón-Pinedo, J. A., & Delgado Kloos, C. (2017). Scaling to Massiveness with ANALYSE: A Learning Analytics Tool for Open edX. *IEEE Transactions on Human-Machine Systems*, 47(6), 909–914. 2017. Impact factor as of 2017: 2.563, JCR(6/22), Q1, category: computer science, cybernetics – download - ext link.
- J4 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Delgado Kloos, C., Niemann, K., Scheffel, M., & Wolpers, M. (2016). Analyzing the Impact of Using Optional Activities in Self-Regulated Learning. *IEEE Transactions on Learning Technologies*, 9(3), 231–243. Impact factor as of 2016: 2.267, JCR(27/235), Q1, category: education & educational research – download - ext link.
- J3 Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Alario-Hoyos, C., Pérez-Sanagustín, M., & Delgado Kloos, C. (2015). Precise Effectiveness Strategy for analyzing the effectiveness of students with educational resources and activities in MOOCs. *Computers in Human Behavior*, 47, 108–118. Impact factor as of 2015: 2.88, JCR(21/129), Q1, category: psychology, multidisciplinary – download - ext link.
- J2 Leony, D., Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Pardo, A., Martín-Caro, D. A., & Delgado Kloos, C. (2015). Detection and evaluation of emotions in Massive Open Online Courses. *Journal of Universal Computer Science*, 21(5), 638–655. Impact factor as of 2015: 0.546, JCR(89/106), Q4, category: computer science, software engineering – download - ext link.
- J1 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Leony, D. & Delgado Kloos, C. 2015. ALAS-KA: A learning analytics extension for better understanding the learning process in the Khan Academy platform. *Computers in Human Behavior*. 47, 139–148. Impact factor as of 2015: 2.88, JCR(21/129), Q1, category: psychology, multidisciplinary – download - ext link.

#### Other Journals.....

- OJ5 Fernández-Pacheco, A., García S., **Ruipérez-Valiente, J. A.**, German Carro, & Castro M. Remote experimentation through Arduino-based Remote Laboratories. *IEEE Revista Iberoamericana de Tecnologías del Aprendizaje (IEEE-RITA)*, 16(2), pages 180-186. Impact factor as of 2020: 0.23, SJR, Q3, category: engineering (miscellaneous). ext link – download.
- OJ4 Pastor-Galindo, J., Zago, M., Nespoli, P., Lopez Bernal, S., Huertas Celdrán, A., Gil Pérez, M., **Ruipérez-Valiente, J. A.**, Martínez Pérez, G., & Gómez Mármol F. (2020). Twitter social bots: the 2019 Spanish general election data. *Data in Brief*, 32, 106047. Impact factor as of 2019: 0.11, SJR, Q4, category: education. ext link – download.
- OJ3 Domínguez Figaredo, D., Reich, J. & **Ruipérez-Valiente, J. A.** (2020). Learning analytics and data-driven education: a growing field (Análítica del aprendizaje y educación basada en datos: un campo en expansión). *Revista Iberoamericana de Educación a Distancia (RIED)*, 23(2), pages

33-43. Indexed in Latinindex. – download English - download Spanish - ext link.

- OJ2 **Ruipérez-Valiente, J. A.** (2020). El Proceso de Implementación de Analíticas de Aprendizaje (The Implementation Process of Learning Analytics). *Revista Iberoamericana de Educación a Distancia (RIED)*, 23(2), pages 85-101 – download Spanish - ext link.
- OJ1 Alexandron, G., Yoo, L. Y., **Ruipérez-Valiente, J. A.**, Lee, S., & Pritchard, D. E (2019). Are MOOC Learning Analytics Results Trustworthy? With Fake Learners, They Might Not Be! In *International Journal of Artificial Intelligence in Education*, 9(4), pages 484-506. Impact factor as of 2019: 1.18, SJR(9/128), Q1, category: computational theory and mathematics. Springer International Publishing – download – ext link.

### International Conference Proceedings.....

- C32 Manuel J. Gomez, **Jose A. Ruipérez-Valiente**, and Félix J. García Clemente. 2021. Bibliometric Analysis of the Last Ten Years of the European Conference on Technology-Enhanced Learning. In: De Laet T., Klemke R., Alario-Hoyos C., Hilliger I., Ortega-Arranz A. (eds) *Technology-Enhanced Learning for a Free, Safe, and Sustainable World. EC-TEL 2021* – download - ext link.
- C31 Sofia Strukova, **Jose A. Ruipérez-Valiente**, and Félix Gómez Mármol. 2021. Data-Driven Performance Prediction in a Geometry Game Environment. In *Proceedings of the Conference on Information Technology for Social Good (GoodIT '21)*. Association for Computing Machinery, New York, NY, USA, 283–288. – download - ext link.
- C30 Sa'Ar Karp Gershon, **Jose A. Ruipérez-Valiente** and Giora Alexandron (2021). MOOC Monetization Changes and Completion Rates: Are Learners from Countries of Different Development Status Equally Affected? In *Proceedings of the European Conference on Massive Open Online Course* (pp. 169-179) – download - ext link.
- C29 Carina Gonzalez, Alicia García-Holgado, Pedro Plaza, Manuel Castro, Aruquia Peixoto, Julia Merino, Elio Sancristobal, Antonio Menacho, Diana Urbano, Manuel Blázquez, Félix García-Loro, Teresa Restivo, Rebecca Strachan, Paloma Diaz, Inmaculada Plaza, Cristina Fernandez, Susan Lord, Diane Rover, Rosana Chan, Melany Ciampi, Russ Meier, Edmundo Tovar, Magdalena Salazar, Susan Zvacek, **Jose A. Ruipérez-Valiente**, Blanca Quintana, Sergio Martín, Guillermo Botella, África López-Rey, Paulo Abreu (2021). Gender and STEAM as part of the MOOC STEAM4ALL. In *Proceedings of the IEEE EDUCON Global Engineering Education Conference*, 1630–1634. – download - ext link.
- C28 Pedro Plaza, Manuel Castro, Jose Manuel Sáez-López, Elio Sancristobal, Rosario Gil, Antonio Menacho, Félix García-Loro, Blanca Quintana, Sergio Martin, Manuel Blázquez, Alejandro Macho, Pablo Baizán, Francisco Mur, German Carro, Clara Pérez, Ramón Carrasco, África López-Rey, Miguel Rodríguez-Artacho, and **Jose A. Ruipérez-Valiente** (2021). Promoting Computational Thinking through Visual Block Programming Tools. In *Proceedings of the 2021 IEEE Global Engineering Education Conference (EDUCON)*, 1131–1136. – download - ext link.
- C27 Gomez, M., **Ruipérez-Valiente, J. A.**, Martinez, P. A., & Kim, Y. J. (2020). Exploring the Affordances of Sequence Mining in Educational Games. In *Proceedings of the Eight International Conference on Technological Ecosystem for Enhancing Multiculturality* (pp. 648–654) – download - ext link.
- C26 Plaza, P., Castro, M., Merino, J., Restivo, T., Peixoto A., Gonzalez C., Menacho A., García-Loro, F. Sancristobal, E., Blazquez M., Diaz P., Plaza, I., Fondón, I., Sarmiento, A., Civantos, I., Fernandez C., Lord S., Rover, D., Chan R., Ciampi, M., Meier, R., Tovar, E., Salazar, M., Zvacek, S., **Ruipérez-Valiente, J. A.**, Quintana, B., Martín, S., Botella, G., López-Rey, Á., Guedey, M., Abreu, P., Urbano, D., and Strachan, R. Educational Robotics for all gender, diversity, and inclusion in STEAM. *Proceedings of IEEE Learning with MOOCs VII* (pp. 19–24). Antigua,



Gautemala, 2020. – download – ext link.

- C25 Maldonado-Mahauad, J., **Ruipérez-Valiente, J. A.**, Pérez-Sanagustín, M., Jenner, M, Despujol, I., Turró, C. Staubitz, T., Rohloff, T., Montoro, G., & Reich, J. Participation of Latin America in MOOCs: Exploring Trends Across Providers. Proceedings of IEEE Learning with MOOCs VII (pp. 25–30). Antigua, Gautemala, 2020. – download – ext link.
- C24 Kim Y.J., & **Ruipérez-Valiente, J. A.**. 2020. Data-driven Game Design: The Case of Difficulty in Educational Games. Proceedings of the 15th European Conference on Technology Enhanced Learning (pp. 449–454), Heidelberg, Germany, 2020. – download – ext link.
- C23 Expósito-Ventura, M. **Ruipérez-Valiente, J. A.**, & Forné, J. 2020. Measuring Online Advertising Viewability and Analyzing its Variability Across Different Dimensions. Proceedings of the 10th edition of the International Conference on Web Intelligence, Mining and Semantics (WIMS 2020) (pp. 117–122). Biarritz, France – download – ext link.
- C22 **Ruipérez-Valiente, J. A.**, Jenner, M., Staubitz, T., Li, X., Rohloff, T., Halawa, S., Turro, C., Cheng, Y., Zhang, J., Despujol, I. & Reich, J. 2020. Macro MOOC Learning Analytics: Exploring Trends Across Global and Regional Providers. Proceedings of the 10th International Learning Analytics and Knowledge Conference (LAK'20) (pp. 518-523). Frankfurt, Germany. – download – ext link – presentation.
- C21 Alexandron, G., Wilttrout, M.E., Berg, A. & **Ruipérez-Valiente, J. A.**. 2020. Assessment that matters: Balancing reliability an learner-centered pedagogy in MOOC assessment. Proceedings of the 10th International Learning Analytics and Knowledge Conference (LAK'20) (pp. 512-517). Frankfurt, Germany – download – ext link.
- C20 Alexandron, G., **Ruipérez-Valiente, J. A.**, & Pritchard, D. E. Towards a General Purpose Anomaly Detection Method to Identify Cheaters in Massive Open Online Courses. Proceedings of the 12th international conference on educational data mining (pp. 480-483). Montreal, Canada. 2019. download – ext link.
- C19 Littenberg-Tobias, J., **Ruipérez-Valiente, J. A.**, & Reich, J. Impact of Free-Certificate Coupons on Learner Behavior in Online Courses: Results from Two Case Studies. Proceedings of the Sixth ACM Conference on Learning @ Scale (L@S'19). Article No. 41. Chicago (IL), USA. 2019. download – ext link.
- C18 **Ruipérez-Valiente, J. A.**, Halawa S. & Reich, J. Multiplatform MOOC Analytics: Comparing Global and Regional Patterns in edX and Edraak. Proceedings of the Sixth ACM Conference on Learning @ Scale (L@S'19). Article No. 3. Chicago (IL), USA. 2019. download – ext link.
- C17 Kim Y.J., **Ruipérez-Valiente, J. A.**, Tan P., Rosenheck L. & Klopfer E. Towards a Process to Integrate Learning Analytics and Evidence-Centered Design for Game-based Assessment. In Companion Proceedings of the 9th International Learning Analytics and Knowledge Conference (LAK'19). Tempe (AZ), USA. 2019. download – ext link.
- C16 **Ruipérez-Valiente, J. A.** & Reich J. Participation of the Arab World in MOOCs. Learning with MOOCs. In Learning With MOOCS (LWMOOCS) (pp. 47-50). IEEE. Madrid, Spain. 2018 – download – ext link.
- C15 Alexandron, G., **Ruipérez-Valiente, J. A.**, Lee, S., & Pritchard, D. E (2018). Evaluating the Robustness of Learning Analytics Results Against Fake Learners. In Proceedings of the 13th European Conference on Technology Enhanced Learning (pp. 74-87). Springer International Publishing – download - ext link.
- C14 **Ruipérez-Valiente, J. A.**, Cobos, R., Muñoz-Merino, P. J., Andújar, A., & Delgado Kloos, C. (2017). Early Prediction and Variable Importance of Certificate Accomplishment in a MOOC. In Proceedings of the European Conference on Massive Open Online Courses (pp. 263–272).

Springer International Publishing – download – ext link.

- C13 **Ruipérez-Valiente, J. A.**, Joksimovic, S., Kovanovic, V., Gasevic, D., Muñoz-Merino, P. J., & Delgado Kloos, C. (2017). A Data-driven Method for the Detection of Close Submitters in Online Learning Environments. In Proceedings of the 26th International Conference on World Wide Web Companion (pp. 361–368). ACM. CORE Rank: A\* – download - ext link.
- C12 **Ruipérez-Valiente, J. A.**<sup>†</sup>, Alexandron, G.<sup>†</sup>, Chen, Z., & Pritchard, D. E. (<sup>†</sup>same author contribution, 2016). Using multiple accounts for harvesting solutions in MOOCs. In Proceedings of the Third ACM Conference on Learning@Scale (pp. 63–70) – download - ext link - video.
- C11 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2016). Analyzing students' intentionality towards badges within a case study using Khan academy. In Proceedings of the Sixth International Conference on Learning Analytics & Knowledge (pp. 536–537). ACM. Google Scholar h5-index factor: 32 – download - ext link.
- C10 Pijera Díaz, H. J., Santofimia Ruiz, J., **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2016). A Demonstration of ANALYSE: A Learning Analytics Tool for Open edX. In Proceedings of the Third ACM Conference on Learning@Scale (pp. 329–330). ACM. Google Scholar h5-index factor: 14 – download - ext link.
- C9 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2016). An analysis of the use of badges in an educational experiment. In Frontiers in Education Conference (pp. 1–8). IEEE. CORE Rank: B – download - ext link.
- C8 Pijera, H. J., Santofimia, J., **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2015). Using Video Visualizations in Open edX to Understand Learning Interactions of Students. In 10th European Conference on Technology Enhanced Learning (pp. 522–525). Springer International Publishing. Google Scholar h5-index factor: 16 – download - ext link - video.
- C7 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2015). A Predictive Model of Learning Gains for a Video and Exercise Intensive Learning Environment. In International Conference on Artificial Intelligence in Education (pp. 760–763). Springer International Publishing. CORE Rank: A – download - ext link.
- C6 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., Delgado Kloos, C., Niemann, K., & Scheffel, M. (2014). Do Optional Activities Matter in Virtual Learning Environments? In Ninth European Conference on Technology Enhanced Learning (pp. 331–344). Springer International Publishing. Google Scholar h5-index factor: 16 – download - ext link.
- C5 Delgado Kloos, C., Muñoz-Merino, P. J., Muñoz-Organero, M., Alario-Hoyos, C., Pérez-Sanagustín, M., Parada G., H. A., **Ruipérez-Valiente, J. A.**, Sanz, J. L. (2014). Experiences of running MOOCs and SPOCs at UC3M. In IEEE Global Engineering Education Conference, EDUCON (pp. 884–891) – download - ext link.
- C4 Santofimia Ruiz, J., Pijera Díaz, H. J., **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2014). Towards the Development of a Learning Analytics Extension in Open edX. In Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality (pp. 299–306) – download - ext link.
- C3 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2014). A demonstration of ALAS-KA: A learning analytics tool for the Khan Academy platform. In 9th European Conference on Technology Enhanced Learning (EC-TEL 2014) (pp. 518–521) – download - ext link.
- C2 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2013). An architecture for extending the learning analytics support in the Khan Academy framework. In Proceedings of the First International Conference on Technological Ecosystem for Enhancing Multiculturality (pp.

277–284) – download - ext link.

- C1 Muñoz-Merino, P. J., **Ruipérez Valiente, J. A.**, & Kloos, C. D. (2013). Inferring higher level learning information from low level data for the Khan Academy platform. In Proceedings of the Third International Conference on Learning Analytics and Knowledge - LAK'13 (pp. 112–116) – download - ext link.

#### International Workshops Proceedings.....

- W4 Joyner, D. A., Carlon M., Cross, J., Corpeño, E., Hernández Rizzardini, R., Rodas O., Shah, D., Cortes-Mendez, M., Staubitz, T., and **Ruipérez-Valiente, J. A.**. 2020. Global Learning @ Scale. In Proceedings of the Seventh ACM Conference on Learning @ Scale (229–232). ACM, New York, NY, USA – download – ext link.
- W3 Redondo, D., Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Delgado Kloos, C., Pijera Díaz, H. J., & Santofimia Ruiz, J. (2015). Combining Learning Analytics and the Flipped Classroom in a MOOC of maths. In International Workshop on Applied and Practical Learning Analytics (pp. 71–79). CEUR Workshop Proceedings – download - ext link.
- W2 Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Alario-Hoyos, C., Pérez-Sanagustín, M., & Kloos, C. D. (2014). Analítica del Aprendizaje para la Evaluación Precisa de la Efectividad del Alumno con Actividades y Recursos Educativos. In Proceedings of the 9th Iberian Conference on Information Systems and Technologies (CISTI 2014) (pp. 1–6) – download - ext link.
- W1 Leony, D., Muñoz-Merino, P. J., Pardo, A., **Ruipérez-Valiente, J. A.**, Martín-Caro, D. A., & Kloos, C. D. (2014). Rule-based detection of emotions in the Khan Academy platform. In Proceedings of the 5th Congreso Internacional sobre Calidad y Accesibilidad de la Formación Virtual (CAFVIR 2014). International Workshop on Massive Open Online Courses (pp. 556–562). Antigua, Guatemala – download - ext link.

#### National Conference Proceedings.....

- CN3 Félix Gómez Mármol, **Jose A. Ruipérez-Valiente**, Pantaleone Nespoli, Gregorio Martinez Perez, Diego Rivera Pinto, Xavier Larriva Novo, Manuel Álvarez-Campana, Víctor Villagrà González, Jorge Maestre Vidal, Francisco Antonio Rodríguez López, Miguel Páramo Castrillo, Javier Ignacio Rojo Lacal and Ramón García-Abril Alonso (2021). COBRA: Cibermaniobras adaptativas y personalizables de simulación hiperrealista de APTs y entrenamiento en ciberdefensa usando gamificación. In Proceedings of the 6th Jornadas Nacionales de Investigación en Ciberseguridad (JNIC 2021), 227-230. – download - ext link.
- CN2 Mariano Albaladejo-Gonzalez, Sofia Strukova, **Jose A. Ruipérez-Valiente** and Félix Gómez Mármol (2021). Exploring the Affordances of Multimodal Data to Improve Cybersecurity Training with Cyber Range Environment. In Proceedings of the 6th Jornadas Nacionales de Investigación en Ciberseguridad (JNIC 2021), 231-234. – download - ext link.
- CN1 Martinez, P. A., Gomez, M. J., **Ruipérez-Valiente, J. A.**, Martínez Pérez, G., & Kim, Y. J. (2020). Visualizing Educational Game Data: A Case Study of Visualizations to Support Teachers. In Learning Analytics Summer Institute Spain. CEUR Workshop Proceedings, Vol 2671, 97-111 – download – ext link.

#### Book Chapters.....

- B4 Kim Y.J., Lin, G. & **Ruipérez-Valiente, J. A.** Expanding Teacher Assessment Literacy with the Use of Data Visualizations in Game-based Assessment. In Visualizations and dashboards for learning analytics. (pp. XXX - YYY). Springer. ISBN 978-3-030-81222-5 – download - ext link.
- B3 **Ruipérez-Valiente, J. A.**, Rosenheck L. & Kim Y.J. What Does Exploration Look Like? Painting a Picture of Learning Pathways Using Learning Analytics. In Game-Based Assessment Revisited.

Advances in Game-Based Learning. (pp. 281-300). Springer. ISBN 978-3-030-15569-8 – download - ext link.

- B2 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2015). Diseño e Implementación de un Módulo de Analítica de Aprendizaje, y su Aplicación para la Evaluación de Experiencias Educativas. In TICs para el Aprendizaje de la Ingeniería (TICAI) (pp. 77–84). ISBN 978-84-8158-711-1 – download - ext link.
- B1 Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Moreno, J. L. S., & Kloos, C. D. (2015). Assessment activities in massive open on-line courses: Assessment activities in MOOCs. In Furthering higher education possibilities through massive open online courses (pp. 165-192). IGI Global. – download - ext link.

### Edited Volumes

- E3 Meinel, C., Staubitz, T., Schweiger, S., Friedl, C., Kiers, J., Ebner, M., Lorenz, A., Ubachs, G., Mongenet, C., **Ruipérez-Valiente, J. A.**, Cortes, M., Merceron, A., von Schmieden, K. (2021). The seventh European MOOC Stakeholder Summit (EMOOCs 2021). Online. Universität Potsdam Publishing. ISSN 978-3-86956-512-5. DOI.
- E2 Calise, M., Delgado Kloos, C., Reich, J., **Ruipérez-Valiente, J. A.**, Shimshon, G., Staubitz, T., and Wirsing M. (2019). EMOOCs 2019 Work in Progress Papers of Research, Experience and Business Tracks (EMOOCs-WIP 2019). Naples, Italy, May 20-22, 2019. CEUR-WS. ISSN 1613-0073. URN – ext link.
- E1 Calise, M., Delgado Kloos, C., Reich, J., **Ruipérez-Valiente, J. A.**, and Wirsing M. (2019). Digital Education: At the MOOC Crossroads Where the Interests of Academia and Business Converge. 6th European MOOCs Stakeholders Summit, EMOOCs 2019, Naples, Italy, May 20-22, 2019. LNCS 11475. Springer. ISBN 978-3-030-19874-9. doi – ext link.

### Scientific Dissemination

- D1 **Ruipérez-Valiente, J. A.** ¿Deben los gobiernos poner límites a la inteligencia artificial? (Should governments regulate artificial intelligence?) The Conversation ES. link.

### Publications Under Review

- JXX Alexandron, G., Wiltrout, M.E., Berg, A. Karp, S., & **Ruipérez-Valiente, J. A.**. The Effects of Assessment Design on Academic Dishonesty, Learner Engagement, and Certification Rates in MOOCs. Under review in Journal of Computer Assisted Learning.
- JXX Manuel J. Gomez, **Jose A. Ruipérez-Valiente**, and Félix J. García Clemente. 2021. A NLP-enhanced Bibliometrics Study of the Technology-enhanced Learning Field. Under review in Scientometrics journal.
- JXX Manuel J. Gomez, **Jose A. Ruipérez-Valiente**, and Félix J. García Clemente. 2021. A Systematic Literature Review of Digital Game-based Assessment Empirical Studies: Current Trends and Open Challenges. Under review in Computers & Education (currently fixing major revisions).
- JXX **Ruipérez-Valiente, J. A.**, Jenner, M., Staubitz, T., Li, X., Rohloff, T., Halawa, S., Turro, C., Zhang, J., Despujol, I. & Reich, J. 2021. Global and Regional MOOC Providers: Differences in Learners' Demographics, Preferences, and Perceptions. Under review in Computers & Education (currently fixing major revisions).
- JXX **Ruipérez-Valiente, J. A.**, Kim, Y. J., & Baker, R. 2021. The Affordances of Multivariate Elo-based Learner Modeling in Game-based Assessment. Under review in IEEE Transactions on Learning Technologies.
- JXX Daniel Jaramillo-Morillo, **Jose A. Ruipérez-Valiente**, Claudia Burbano Astaiza, Mario Solarte Sarasty, and Giora Alexandron. Evaluating a Learning Analytics Dashboard to Detect Dishonest

- Behaviours: A Case Study in SPOCs with Academic Recognition. Under review in Journal of Computer Assisted Learning.
- JXX Sofia Strukova, **Jose A. Ruipérez-Valiente**, and Félix Gómez Mármol. 2021. A Survey on Data-Driven Evaluation of Competencies and Capabilities across Multimedia Environments. Under review in International Journal of Interactive Multimedia and Artificial Intelligence.
- JXX Sofia Strukova, **Jose A. Ruipérez-Valiente**, and Félix Gómez Mármol. 2021. Adapting Knowledge Inference Algorithms to Measure Geometry Competencies through a Puzzle Game. Under review in Entertainment Computing journal.
- JXX Alfonso Ramallo, and **Jose A. Ruipérez-Valiente**. 2021. Evaluation of engagement and desirability of different teaching techniques of energy concepts – How to rise energy literacy of the general public in educational institutions. Under review in IEEE Transactions on Education.

## Participation in Events

### Invited Talks.....

- I11 Invited talk at 'Semana de la empleabilidad. UCAM Job Meet' (Murcia, Spain). 2020. Casos de éxito en Ingeniería.
- I10 Invited talk 'eMadrid Seminar on Learning analytics and Serious Games' (Madrid, Spain). 2020. Applying learning analytics to a serious geometry puzzle game.
- I9 Invited talk 'COGITTRM Jóvenes talentos de la ingeniería, tecnología e industria' (Murcia, Spain). 2020. El potencial de los datos y la tecnología para mejorar la educación.
- I8 Invited talk in 'IX Conference Internacional de educación virtual' (Antigua, Guatemala). 2020. Patrones a Gran Escala en Proveedores de MOOCs Globales y Regionales.
- I7 Invited talk in Learning with MOOCs conference 2020 - Macro MOOC Learning Analytics: Trends Across Global and Regional Providers – link.
- I6 Understanding students in digital education through learning analytics - Seminar on Educational Innovations SINNE at the University of Cauca – video - link.
- I5 Plenary Round Table - The Scalability of Online Degrees at EMOOCs 2019 conference – program - link.
- I4 Research in Learning Analytics vs. Learning Analytics in the University (2019). The challenge of digitalizing the university. Artificial intelligence and the personalization of learning – program - video.
- I3 Design and Implementation of a Learning Analytics Module for the Khan Academy Platform (2015). 2nd World Congress on Systems Engineering and Information Technology, WCSEIT'15.
- I2 Design and Implementation of a Learning Analytics Module for the Khan Academy Platform. V eMadrid Workshop – video.
- I1 ALASKA A Learning Analytics Tool for the Khan Academy Platform. Local-Learning Analytics Summer Institute – video.

### Refereed Presentations without Proceedings.....

- P5 **Ruipérez-Valiente, J. A.**, Kim Y.J., Tan P., Rosenheck L. and Klopfer E. (2019). Can Learning Analytics Generate Trustworthy Assessment on a Geometry Game? In LAK Hackathon 2019: Trusted and Inclusive Learning Analytics Across Spaces with New Tools, Standards and Infrastructures
- P4 **Ruipérez-Valiente, J. A.** and Reich J (2018). Poster presentation of Patterns of Participation of the Arab World in MITx MOOC Portfolio. Festival of Learning. London, UK.
- P3 Alexandron, G., **Ruipérez-Valiente, J. A.**, & Pritchard, D. E. (2015). Evidence of MOOC

Students Using Multiple Accounts to Harvest Correct Answers. In Learning with MOOCs II: A Workshop for Practitioners: New Approaches to Teaching & Learning. New York City (NY), USA – video.

- P2 **Ruipérez-Valiente, J. A.**, Muñoz-Merino, P. J., & Delgado Kloos, C. (2015). ANALYSE: A Learning Analytics Tool for Open edX. The Open edX Conference. Wellesley (MA), USA – video
- P1 Kloos, C. D., Muñoz-merino, P. J., **Ruipérez-Valiente, J. A.**, Auger, M. A., Briz, S., Castro, V. De, & Santalla, S. N. (2014). A Successful Learning Experience using SPOCs. In Learning with MOOCs: A Practitioner's Workshop. Boston (MA), USA – video.

## Teaching

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### Undergraduate.....

- Object Oriented Programming. University of Murcia (Spring 2020; Spring 2021)
- Research and Quantitative Analysis II: Big Data. University of Murcia (Fall 2019; Fall 2020)

### Graduate Courses.....

- CMS.594/CMS.894 Education Technology Studio. Massachusetts Institute of Technology (Spring 2019; Fall 2020).

### Online Teaching.....

- Education Technology Studio. MIT OpenCourseware (Spring, 2019) – link.
- MOOC on Digital Electronics. UNED Abierta platform (four editions of the course).
- MOOC on Foundations to Open Education and OER. UNED Abierta platform (three editions of the course).
- MOOC on Educational Robotics for all: gender, diversity, and inclusion in STEAM. UNED Abierta platform (three editions of the course).

### External Student Evaluation Committees.....

- MEng Thesis Committee member of Diego Andrés Sapunar Opazo. MEng in Engineering Sciences. "Metodología de Análisis de Intervenciones para Apoyar la Autorregulación en Escenarios de Aprendizaje Basados en MOOCs." Pontificia Universidad Católica de Chile (2020).
- PhD Thesis Committee member of José Antonio Estrada Jiménez. "Privacy in Online Advertising Platforms." PhD in Telematics Engineering. Universitat Politècnica de Catalunya (2020).
- PhD Thesis Committee member of Daniel Pérez Berenguer. "Un entorno para la creación de actividades de aprendizaje: uso de estándares de interoperabilidad, analíticas de aprendizaje y automatización basada en modelos". PhD in Computer Science. Universidad de Murcia (2020).
- PhD Thesis Proposal Committee member of Daniel Alberto Jaramillo Morillo. PhD in Telematics Engineering. Universidad del Cauca (Colombia) (2018).

### Invited PhD Seminars.....

- Seminar on 'Understanding Students through Learning Analytics in the Digital Era: Case Studies in MOOCs and Games for Learning' – For the PhD Program at Universidad of Valladolid (2 hours, 2020, Valladolid, Spain)
- Seminar on 'From Academia to Industry and Back to Academia: How to Survive [and Succeed] in your Career Pathway' – For the PhD Program at Universidad of Valladolid (1.5 hour, 2020, Valladolid, Spain)
- Seminar on 'Learning Analytics for the Evaluation of Competencies and Behaviors in Serious Games' – For the PhD Program at Universidad Complutense of Madrid (1 hour, 2019, Madrid,

Spain).

- Seminar on 'Detection and impact of fake learners in Massive Open Online Courses' at HEC Paris (1.5 hour, January 8, 2019, Paris, France).
- Seminar on 'Detection and impact of fake learners in Massive Open Online Courses' at Institute IMDEA Networks (1 hour, October 29, 2018, Madrid, Spain).

### **Workshops & Trainings**

- Workshop on Learning analytics design in game-based learning at JTEL Summer School 2019 (3 hours, June 5, Bari, Italy).
- Training on 'Network Analysis' at business company ExoClick (4 hours, 2017, Barcelona, Spain).
- Training on 'How to make data work for you' at business company ExoClick (4 hours, 2017, Barcelona, Spain).

### **Advising & Mentoring**

#### **Current students:**

- PhD Students:
  - Marta Expósito Ventura. PhD Telematics Engineering at Universitat Politècnica de Catalunya. Thesis "Contributions toward a computational viewability to improve the online advertising ecosystem". End date expected in 2022.
  - Daniel Alberto Jaramillo Morillo. PhD in Telematics Engineering at Universidad del Cauca. Thesis "Characterizing Academic Dishonesty in Massive Private Online Courses (MPOC) with Academic Recognition through Learning Analytics". End date expected in 2022.
  - Sofia Strukova. PhD in Computer Science at Universidad de Murcia "A framework and case studies for data-driven evaluation of competencies and capabilities across contexts". End date expected in 2023.
  - Manuel Jesús Gómez Moratilla. PhD in Computer Science at Universidad de Murcia "Advances on methodological approaches, algorithms, and data sources for game-based assessments in multiple environments". End date expected in 2024.
  - Mariano Albaladejo González. PhD in Computer Science at Universidad de Murcia "AI-driven multimodal systems to support the evaluation and training of professionals that work in critical situations". End date expected in 2024.
- Bachelor and master students:
  - Jose Ramón Guillén López. BEng in Computer Science. Universidad de Murcia.
  - Pedro Antonio Martínez Sánchez. MSc on New Technologies in Computer Science at Universidad de Murcia.
  - Gonzalo Caparrós. MSc on in Big Data Technologies at Universidad de Murcia.

#### **Previously supervised bachelors' and masters' theses:**

- Manuel Jesús Gómez Moratilla. Thesis "Fontana: towards a framework to analyze trends and patterns in research papers" (2021). MSc in Big Data Technologies at Universidad de Murcia. Score: 9,8.
- Mariano Albaladejo González. Thesis "Investigación y desarrollo de soluciones para la detección del estrés a través de señales biométricas captadas por pulseras inteligentes" (Research and development of solutions for stress detection through biometric signals captured by smart wristbands). MSc in Big Data Technologies at Universidad de Murcia (2021). Score: 9,7.
- Sergio Rubio Menor. Thesis "Estudio sobre el efecto de laboratorios virtuales en cursos abiertos masivos en línea (MOOCs)" (Study about the effects of virtual laboratories in massive open online courses) (2021). MSc in Big Data Technologies at Universidad de Murcia. Score 9,1.

- Manuel Jesús Gómez Moratilla. BEng in Computer Science at Universidad de Murcia. Thesis "Niveles de progreso y patrones en juegos educativos" (Levels of progress and patterns in educational games) (2020). Score 9,7.
- Pedro Antonio Martínez Sánchez. BEng in Computer Science at Universidad de Murcia. Thesis "Análisis de la actividad, dificultad, y conocimiento en juegos educativos: Métricas y visualizaciones" (Analysis of the activity, difficulty, and knowledge in learning games: Metrics and visualizations) (2020). Score: 9,2.
- César Ugarte Cerrato. MEng Telecommunications at Universidad Carlos III of Madrid. Thesis "Design and implementation of a learning analytics toolkit for Open edX" (2016). Score: 10.

### **Specific Teaching Training Received.....**

- MIT Kaufman Teaching Certificate Program (2018).
- Training of University of Murcia in Online Evaluations (2 hours, 2020).

### **Scientific dissemination activities.....**

- Organization of "Interactive activity about energy consumption" as part of ODSesiones at the University of Murcia (8 hours, 2019).
- Organization "Gincana del diente azul" (Bluetooth gymkhana) on the Week of the Science and Technology of Murcia (19 hours, 2009).
- Organization "Contempla el mundo a cámara lenta" (Observe the world via a slow motion camera) on the Week of the Science and Technology of Murcia (22 hours, 2008).

## **Professional Service**

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### **Program Chairs or Senior Committee.....**

- International Track Program Co-Chair European Conference on MOOCs 2021
- Steering Committee Member of Learning with MOOCs 2019–2021
- Steering Committee Member of Learning @ Scale 2019–2021
- Experience Track Program Co-Chair European Conference on MOOCs 2019

### **Technical Program Committee (TPC).....**

- TPC Member ACM Learning @ Scale (L@S) 2021
- TPC Designing Contingent Feedback for Massive Open Online Courses (CoFeeMOOC) 2020
- TPC Immersive Learning Research Network (iLRN) 2020
- TPC Member European Conference on Technology-enhanced Learning (ECTEL) 2020–2021
- TPC Member EATEL Summer School on Technology Enhanced Learning (JTELSS) 2020
- TPC Member of the International Conference on Education and Technology in Sciences (CISETC) 2020
- TPC Member of the International Conference on Human and Social Analytics (HUSO) 2020
- TPC Member of Learning Analytics and Knowledge (LAK) conference 2020–2022
- TPC Member of Culturally Inclusive Learning Analytics Workshop (CILA) 2019
- TPC Member of AdKDD Workshop 2019–2021
- TPC Member Artificial Intelligence in Education (AIED) 2019–2021
- TPC Member MIT LINC Conference 2019
- TPC Member IEEE Conference on Teaching, Assessment and Learning for Engineering (TALE) 2018–2021



## Event Organization.....

- Global Learning @ Scale Workshop co-held with the 2020 Learning @ Scale Conference. Atlanta (USA).
- Co-organizer of the LAKathon2020: The 6th Learning Analytics Hackathon. Frankfurt (Germany)
- Co-organizer of the LAKathon2021: The 7th Learning Analytics Hackathon. Online.
- Co-organizer of the Workshop on Learning Analytics and Assessment, co-located with the 2021 Conference on Learning Analytics & Knowledge. Online
- Co-organizer of the Workshop on Design of Learning Analytics for Digital Game Use in the Classroom, co-located with the 2021 Conference on Learning Analytics & Knowledge. Online

## Grant Evaluator.....

- Israel Science Foundation (ISF)

## Journal Reviewer.....

I have performed ad-hoc reviews as an expert for more than 30 journals:

1. Journal of Behavior and Information Technology
2. IEEE Transactions on Learning Technologies
3. Journal of Learning Analytics
4. Computers in Human Behavior
5. EURASIA Journal of Mathematics, Science and Technology Education
6. Journal of Universal Computer Science
7. Applied Soft Computing
8. IEEE Journal of Latin-American Learning Technologies
9. Journal of Interactive Media in Education
10. Knowledge-Based Systems
11. IEEE Access
12. Estudios sobre educación
13. MDPI Sociel Sciences
14. Revista Iberoamericana de Educación a Distancia
15. Science Advances
16. MDPI Sustainability
17. MDPI Future Internet
18. MDPI Computation
19. MDPI Sensors
20. Journal of Business Research
21. British Journal of Educational Technology
22. MDPI Electronics
23. Computers & Education
24. Journal of Computer Assisted Learning
25. International Journal on Artificial Intelligence in Education
26. International Journal of Environmental Research and Public Health
27. Artificial Intelligence Review
28. IEEE Latin America Transactions
29. MPDI Education Sciences
30. International Journal of Cooperative Information Systems
31. Creativity and Innovation Management Journal
32. European Journal of Engineering Education

33. Revista Científica de la Universidad Francisco José de Caldas
34. Applied Mathematics and Computation
35. International Journal of Human-Computer Interaction

#### External Reviewer.....

- Connected Learning Submit 2020
- Solve's Challenge 2018
- ACM CHI Conference on Human Factors in Computing Systems 2018
- Learning Analytics and Knowledge Conference 2016
- Australasian Society for Computers in Learning in Tertiary Education Conference 2016
- Frontiers in Education Conference 2016
- Learning with MOOCs 2015

#### Editorial.....

Experience as editor in journals:

- Associate Editor Journal of Humanized Computing and Ambient Intelligence since 2021.
- Associated Editor Journal of the Iberoamerican Review of Digital Education Journal (RIED) since 2020.
- Editor of CEUR-WS.org, the biggest open and free online proceedings for scientific conferences and workshops on computer science, information systems and information technology. 2019–2020.

Experience organizing special issues on topics within my expertise as guest editor:

- Guest Editor for Special Issue on "Learning Analytics & Data-driven Education" in the Iberoamerican Review of Digital Education Journal (RIED) – Link Special Issue.
- Guest Editor for Special Issue on "From Sensor Data to Educational Insights" in Sensors journal – Link Special Issue.
- Guest Editor For Special Issue on "Advances in Applied Technology, Computation and Artificial Intelligence to Improve the Web Ecosystem" in Applied Sciences journal – Link Special Issue
- Guest Editor for Special Issue Call on "Trustworthy Assessment and Academic Integrity in Remote Learning: design, technologies, policies, privacy, and the disruption of COVID-19" in the Journal of Computer Assisted Learning – Link Special Issue.
- Guest Editor for Special Issue Call on "Learning Analytics & Assessment" in the British Journal of Educational Technology.

#### Academic Service.....

- Member of the Council of the Information and Communication Engineering Department at the University of Murcia 2019-present.
- Postdoc representative at the Massachusetts Institute of Technology 2019-2020.
- PhD student representative in the Telematics Engineering Department from 2014-2016.

### Projects

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I have participated in a total of 18 projects and contracts for a total of 3.4 million euros, distributed in three European projects, three national projects in Spain and two more in the USA, two international projects, two regional projects, and six contracts. From these projects, I have taken the role of IP in three of them and of work package leader in another one.

#### European Research Projects.....

- **Project Name:** DALI - Data Literacy for Citizenship (2020-1-NO01-KA204-076492)

- **Duration:** 31-12-2020 – 30-12-2023.
- **Funding agency:** European Commission.
- **Partners:** Universitetet i Bergen (Norway), Universidad de Murcia (Spain), Coventry University (UK), Friedrich-Alexander-Universität Erlangen-Nürnberg (Germany), and Universitat de les Illes Balears (Spain).
- **Role:** Researcher.
- **Budget:** €76,320 for UMU from a total of €346,734.
- **Project Name:** PALANTIR - Practical Autonomous Cyberhealth for resilient SMEs & Microenterprises (H2020-SU-DS-2019, 883335)
  - **Duration:** 2020-09-01 – 2023-08-31.
  - **Funding agency:** European Commission.
  - **Partners:** DBC EUROPE (Belgium), Infili Technologies (Greece), Fundacio i2cat (Spain), Universidad de Murcia (Spain), Space Hellas Anonymi Etaireia Systimata Kai Ypiresies Tilepikoinoionpliroforikis Asfaleias (Greece), Hewlett-Packard Limited (UK), NEC Laboratories Europe GMBH (Germany), Telefónica Investigación y Desarrollo (Spain), Politecnico Di Torino (Italy), Incites Consulting SARL (Luxembourg), National Center for Scientific Research "Demokritos" (Greece), Orion Innovations (Greece), Ubitech Limited (Cyprus), Sfera IT Storitve Doo (Slovenia), Stratiotiki Sxoli Evelpidon (Greece).
  - **Role:** Researcher.
  - **Budget:** €246,750 for UMU from a total of €5,267,976.
- **Project Name:** 5GZORRO - Zero-Touch Security and Trust for Ubiquitous Computing and Connectivity in 5G Networks (H2020-ICT, 871533)
  - **Duration:** 2019-11-01 – 2022-04-30
  - **Funding agency:** European Commission
  - **Partners:** Fundació i2CAT (Spain), Universidad de Murcia (Spain), Telefónica Investigación y Desarrollo (Spain), Nextworks (Italy), Intracom (Greece), Ubiwhere LDA (Portugal), Bartr Holding Limited (UK), Comunicare Digitale APS (Italy), Malta Communication Authority (Malta), Fondazione Bruno Kessler (Italy), IBM Israel Science & Technology Ltd (Israel), Altice Lab (Portugal), ATOS (Spain).
  - **Role:** Researcher.
  - **Budget:** €406,500 for UMU from a total of €4,999,965.00.

#### International Research Projects.....

- **Project Name:** Using Learning Analytics in Games for Learning for the Evaluation of Key Competences for the 21st Century (LCF/PR/MIT19/51840011)
  - **Duration:** 2020-01-01 – 2021-08-01
  - **Funding agency:** MIT-Spain - "la Caixa" Foundation Seed Fund. MIT International Science and Technology Initiatives (MISTI) program.
  - **Partners:** Massachusetts Institute of Technology, Universidad de Murcia, Universidad Complutense de Madrid
  - **Role:** Principal investigator from Universidad de Murcia
  - **Budget:** \$24,001.00
- **Project Name:** Global and Regional MOOC Learning Analytics Across Providers and Nationalities (LCF/PR/MIT19/51840006)
  - **Duration:** 2020-01-01 – 2021-08-01.
  - **Funding agency:** MIT-Spain - "la Caixa" Foundation Seed Fund. MIT International Science and Technology Initiatives (MISTI) program.

- **Partners:** Massachusetts Institute of Technology and Universidad de Murcia.
- **Role:** Principal investigator from Universidad de Murcia.
- **Budget:** \$22,936.00.

## National Research Projects.....

- **Project Name:** COBRA: Cibermaniobras adaptativas y personalizables de simulación hiperrealista de APTs y entrenamiento en ciberdefensa usando gamificación (BOE-B-2020-45111).
  - **Duration:** 2020-12-1 – 2022-11-30
  - **Funding agency:** Ministry of Defence
  - **Partners:** University of Murcia
  - **Role:** Work package leader.
  - **Budget:** €400,000.00
- **Project Name:** SAFEMAN: A unified management framework for cybersecurity and safety in the manufacturing industry (RTI2018-095855-B-I00).
  - **Duration:** 2019-01-01 – 2021-12-31
  - **Funding agency:** Ministerio de Ciencia, Innovación y Universidades, España.
  - **Partners:** Universidad de Murcia
  - **Role:** Researcher
  - **Budget:** €161,051.00
- **Project Name:** EAGER: Reimagining Teachers' Assessment Literacy Using Game-Based Learning Analytics (#1935450)
  - **Duration:** 2019-08-15 – 2021-07-31.
  - **Funding agency:** National Science Foundation of the United States of America
  - **Partners:** Massachusetts Institute of Technology
  - **Role:** Researcher
  - **Budget:** \$300,000.00
- **Project Name:** XQ Game-based Assessment Model: A call for continuous, ubiquitous and rigorous assessment
  - **Duration:** 2018-01-01 – 2022-01-01
  - **Funding agency:** US XQ Institute
  - **Partners:** Massachusetts Institute of Technology
  - **Role:** Researcher
- **Project Name:** International Patterns of Participation and Completion in Massive Open Online Courses
  - **Duration:** 2018-04-09 – 2019-06-30
  - **Funding agency:** MIT private funding
  - **Partners:** Massachusetts Institute of Technology and Harvard
  - **Role:** Researcher
- **Project Name:** RESET: Reformulando ecosistemas escalables educativos (TIN2014-53199-C3-1-R)
  - **Duration:** 2015-01-01 – 2019-06-30
  - **Funding agency:** Ministerio de Economía, Industria y Competitividad
  - **Partners:** Universidad Carlos III de Madrid, Universidad de Valladolid, Universidad Pompeu Fabra
  - **Role:** Researcher
  - **Budget:** €136,900.00
- **Project Name:** EEE-Virtual: Orquestando espacios educativos especulares (TIN2011-28308-

C03-01).

- **Duration:** 2012-01-01 – 2015-07-31
- **Funding agency:** Ministerio de Ciencia, Innovación y Universidades
- **Partners:** Universidad Carlos III de Madrid, Universidad de Valladolid, Universidad Pompeu Fabra
- **Role:** Researcher
- **Budget:** €165,165.00

#### Regional Research Projects.....

- **Project Name:** eMadrid. Investigación y Desarrollo de Tecnologías Educativas en la Comunidad de Madrid (P2018/TCS-4307)
  - **Duration:** 2018-10-01 – 2022-12-31
  - **Funding agency:** Comunidad de Madrid. Consejería de Educación e Investigación
  - **Partners:** Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Universidad Nacional Española Distancia, Universidad Politécnica de Madrid, Universidad Complutense de Madrid y Universidad de Alcalá
  - **Role:** Researcher
  - **Budget:** €690,000.63
- **Project Name:** eMadrid. Investigación y desarrollo de Tecnologías Educativas en la Comunidad de Madrid (S2013/ICE-2715)
  - **Duration:** 2014-10-01 – 2018-12-31
  - **Funding agency:** Comunidad de Madrid. Consejería de Educación e Investigación
  - **Partners:** Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Universidad Nacional Española Distancia, Universidad Politécnica de Madrid, Universidad Complutense de Madrid y Universidad de Alcalá
  - **Role:** Researcher
  - **Budget:** €342,264.63
- **Project Name:** Investigación y desarrollo de tecnologías para el e-learning en la comunidad de Madrid (S2009/TIC-1650)
  - **Duration:** 2010-01-01 – 2014-05-31
  - **Funding agency:** Comunidad de Madrid
  - **Partners:** Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Universidad Nacional Española Distancia, Universidad Politécnica de Madrid, Universidad Complutense de Madrid y Universidad de Alcalá
  - **Role:** Researcher
  - **Budget:** €524,511.18

#### R&D Contracts.....

- **Contract Name:** INSURANCE: IoT and Sensors Networks Securization Using Artificial Intelligence.
  - **Duration:** 2020-03-20 – 2021-03-31
  - **Funding agency:** Federal Office for Defence Procurement Armasuisse
  - **Partners:** Universidad de Murcia and Federal Office for Defence Procurement Armasuisse
  - **Role:** Researcher
- **Contract Name:** LAGA: Learning Analytics and Game-based Assessment
  - **Duration:** 2020-01-01 – 2022-12-31
  - **Funding agency:** Massachusetts Institute of Technology

- **Partners:** Universidad de Murcia and Massachusetts Institute of Technology
- **Role:** Principal investigator.
- **Contract Name:** SOUNDS: Securing communications in a distributed platform for spectrum measurements leveraging heterogeneous sensors
  - **Duration:** 2019-10-01 – 2019-11-30
  - **Funding agency:** Federal Office for Defence Procurement Armasuisse
  - **Partners:** Universidad de Murcia and Federal Office for Defence Procurement Armasuisse
  - **Role:** Researcher
- **Contract Name:** Indra Cyber Range
  - **Duration:** 2019-07-11 – 2020-09-30
  - **Funding agency:** Indra Systems S.A.
  - **Partners:** University of Murcia and Indra Systems S.A.
  - **Role:** Researcher

## Open Source Contributions

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- ANALYSE (Add-on of learnNing AnaLYtics Support for open Edx)
  - ANALYSE is learning analytics tool developed for Open edX. It extends its functionality with 12 new visualizations.
  - ANALYSE has received a lot of attention from different institutions, it was presented at the Open edX conference, received several awards and it was open sourced for the community (GitHub code link, video example)
  - Several publications are based on ANALYSE results (e.g. J6, J7, W5, C4, C8, C10)
- ALAS-KA (Add-on of the Learning Analytics Support for the Khan Academy)
  - ALAS-KA is a plug in for Khan Academy that incorporates 21 new visualizations that are accessible by teachers and students.
  - This tool has been open sourced (GitHub code link, video example) and has received interest from many institutions.
  - ALAS-KA was successfully tested in educational experiences at Universidad Carlos III of Madrid.
  - A number of publications are based on its implementation and deployment (e.g. J1, B2, C1, C2, C3)
- I developed an algorithm as part of publication [C13] to detect close submitters in online environments (i.e. users that tend to submit very close in time over a course due to potential academic dishonesty). This can help multiple account cheating and authorized collaborations (passing answers to other peers) in online environments. The algorithm is open source and available in this GitHub repo.

## Accreditations from ANECA

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- Profesor Contratado Doctor (#2019-7140)
- Profesor de Universidad Privada (#2019-7142)
- Profesor Ayudante Doctor (#2019-7141).

## References

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Some people I have worked with. More available upon request:

- Massachusetts Institute of Technology: Prof. Justin Reich (jreich@mit.edu)

- University of Pennsylvania: Prof. Ryan Baker (ryanshaunbaker@gmail.com)
- University of Wisconsin-Madison: Prof. Yoon Jeon Kim (yj.kim@wisc.edu)
- Weizmann Institute of Science: Prof. Giora Alexandron (giora.alexandron@weizmann.ac.il)