José A. Ruipérez Valiente | Postdoctoral Associate

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Research Interests

Learning Analytics, Educational Data Mining, User Behavioral Modeling, Game-based Learning, Technology-enhanced Learning, Massive Open Online Courses

Biosketch

José A. Ruipérez-Valiente completed his B.Eng. and M.Eng. in Telecommunications at Universidad Católica de San Antonio de Murcia (UCAM) and Universidad Carlos III of Madrid (UC3M) respectively, graduating in both cases with the best academic transcript of the class. Afterwards, he completed his M.Sc. and P.hD. in Telematics at UC3M while conducting research at Institute IMDEA Networks in the area of learning analytics and educational data mining. During this time, he completed two research stays of three months each, the first one at MIT and the second one at the University of Edinburgh. He has received more than 10 academic and research awards and has published more than 30 scientific publications in high impact venues. He has also held industry appointments at Vocento, Accenture and ExoClick, combining experience in academia, research institutions and business companies. Currently he is a postdoctoral associate at the CMS/W department at MIT where he is part of the Teaching Systems Lab and also collaborates with the Education Arcade in applying data science to large scale free online courses and to game-based environments to enhance human knowledge on how we learn. He is passionate about how learning occurs, solving data-based problems, teaching and sharing knowledge, yoga, nature and photography.

Education

Academic	
Universidad Carlos III of Madrid Destar of Philosophy (Ph.D.) in Tolomotics. Cum Loude International Destarate	Madrid
Doctor of Philosophy (Ph.D.) in Telematics, Cum Laude, International Doctorate	2014–2017
Universidad Carlos III of Madrid	Madrid
Master of Science (M.Sc.), Telematics Engineering, GPA: 8,48/10	2013–2014
Universidad Carlos III of Madrid	Madrid
Master of Engineering (M.Eng.), Telecommunication Engineering, Highest GPA	2011–2013
Universidad Católica San Antonio of Murcia	Murcia
Bachelor of Engineering (B.Eng.) in Telecommunication Systems, Highest GPA	2007–2010

Experience

Research & Academia	
Massachusetts Institute of Technology (MIT) Postdoctoral Associate	Cambridge (MA) 04/2018 – Present
ExoClick Data Scientist	Barcelona 05/2017 - 03/2018
Institute IMDEA Networks and Universidad Carlos III of Madrid Research Assistant and PhD candidate	Madrid 01/2014 - 05/2017
University of Edinburgh Visiting Researcher	Edinburgh 09/2016 - 12/2016
Massachusetts Institute of Technology (MIT) Visiting Researcher	Cambridge (MA) 06/2015 - 9/2015
Universidad Carlos III of Madrid Research Assistant	Madrid 07/2012 - 01/2014
Universidad Católica San Antonio of Murcia Research Intern	Murcia 03/2010 - 06/2010
Industry	
Accenture Technology Solutions Software Engineer	Madrid 12/2010 – 09/2011
Multimedia Communications Vocento TV and Radio Technician	Murcia 06/2010 - 12/2010
Awards. Honors and Grants	

Awards, Honors and Grants

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].
- o My Ph.D. thesis has received the following two awards:
 - Best PhD thesis award in "Technology and Education" sponsored by Telefonica Foundation, granted by the Official College of Telecommunications Engineers [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].
- o Collaborator at the Best Pedagogical Innovation Project Award at UC3M [university-wide].
- o 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]
 - Madrid 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].

Scholarships & Fellowships.....

- o Juan de la Cierva 'Incorporación' competitive fellowship from the Ministry of Science, Innovation and Universities (€50.000).
- Data Consortium Fellowship (\$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 scholarship (all fees and salary included) from Institute IMDEA Networks to conduct my MSc and PhD in Telematics Engineering (total package of around €150.000 over 5 years) (2014).

Paper Merits.

- o 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].
- o Paper [C6] selected as one of the best five papers of the conference.

Media Coverage and Press

Some news talking about me or my work:

- o Interview in newspaper 'La verdad' Link
- Some random news about awards and stuff: University UCAM eMadrid network Murcia.com IMDEA Networks
- o Popular TV Murcia interview Video
- o Young CS Researcher Awards: Video FBBVA SCIE La Vanguardia Europa Press EFE Futuro Economista The Objective Expansion

Publications

 $Research\ profiles:\ Google\ Scholar-ResearchGate-ORCID-ResearcherID-Publons-Scopus.$

Overview.....

Current summary of publications include 12 articles in journals indexed in the ISI JCR, 16 publications in proceedings from international conferences, 3 workshop publications and 2 book chapters.

Journals (indexed within ISI JCR).....

- 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 (In press). 2018. Impact factor as of 2017: 1.430, JCR(48/103), 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 (In press). IEEE Transactions on Learning Technologies. 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 2016: 0.575, JCR(73/86), Q4, category: engineering, multidisciplinary download ext link.
- J8 Alexandron, G.†, **Ruipérez-Valiente, J. A.**†, Chen, Z., Pedro J. Muñoz-Merino, & Pritchard, D. E. (†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 2016: 4.538, JCR(7/105), Q1, category: computer science, interdisciplinary applications download ext link.
- J7 Ruipérez-Valiente, J. A., Muñoz-Merino, P. J., Pijeira 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 2016: 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. (2016). Flipping the Classroom to Improve Learning with MOOCs Technology. Computer Applications in Engineering Education, 25(1), 15–25. Impact factor as of 2016: 0.935, JCR(45/85), Q3, category: engineering, multidisciplinary download ext link.
- J5 Ruipérez-Valiente, J. A., Muñoz-Merino, P. J., Gascón-Pinedo, J. A., & Delgado Kloos, C. (2016). 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 2015: 1.8, JCR(5/22), 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(27/231), 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.

- C16 **Ruipérez-Valiente**, **J. A.** and Reich J. Participation of the Arab World in MOOCs. Learning with MOOCs (to be published). 2018 download ext link.
- C15 Alexandron, G., **Ruipérez-Valiente, J. A.**, Lee, Sunbok., & 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.**[†], Alexandron, G.[†], Chen, Z., & Pritchard, D. E. (†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 Pijeira 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 Pijeira, 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-Sanagustin, 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., Pijeira 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.

Workshops Proceedings.

- W3 Redondo, D., Muñoz-Merino, P. J., **Ruipérez-Valiente, J. A.**, Delgado Kloos, C., Pijeira 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 Accessibilidad de la Formacion Virtual (CAFVIR 2014). International Workshop on Massive Open Online Courses (pp. 556–562). Antigua, Guatemala download ext link.

Book Chapters....

- 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.

Participation in Events

Invited Talks.

- 13 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.
- 12 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-LASI Madrid video.

Refereed Presentations without Proceedings.....

- 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. Welleslay (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

Seminars....

- Seminar on 'Detection and impact of fake learners in Massive Open Online Courses' at Institute IMDEA Networks (1 hour, 2018).
- o Training on 'Network Analysis' at business company ExoClick (4 hours, 2017).
- o Training on 'How to make data work for you' at business company ExoClick (4 hours, 2017).

Advising & Mentoring.....

Current graduate students:

Marta Expósito Ventura. PhD Telematics Engineering at Universitat Politecnica de Catalunya.
 Thesis "Contributions toward a better online advertising ecosystem"

Past students:

o César Ugarte Cerrato. MEng Telecommunications at Universidad Carlos III of Madrid. Thesis "Design and implementation of a learning analytics toolkit for Open edX".

Specific Teacher Training Received.....

o MIT Kaufman Teaching Certificate Program (2018).

Other Activities

 Scientific dissemination activity organization 'Gincana del diente Azul' on the Week of the Science and Technology of Murcia (19 hours, 2009).

Professional Service

Conference Committee.....

- o Program Co-Chair European Conference on MOOCs 2019
- o PC Member IEEE Conference on Teaching, Assessment and Learning for Engineering 2018

External Reviewer.....

- o Solve's Challenge 2018
- o ACM CHI Conference on Human Factors in Computing Systems 2018

- Learning Analytics and Knowledge Conference 2016
- o Australasian Society for Computers in Learning in Tertiary Education Conference 2016
- o Frontiers in Education Conference 2016
- o Learning with MOOCs 2015

Journal Reviewer.....

- Journal of Behavior and Information Technology
- o IEEE Transactions on Learning Technologies
- Journal of Learning Analytics
- Computers in Human Behavior
- EURASIA Journal of Mathematics, Science and Technology Education

Academic Service.....

o PhD student representative in the Telematics Engineering Department from 2014-2016

Languages

English: Full professional proficiency. **Spanish**: Native or bilingual proficiency.

Skills

Data science: Python, SQL, R, SPSS statistical analysis, applied machine learning

Full stack development: J2EE, Django, JavaScript, AJAX, metadata languages, web services, MySQL, Oracle, MongoDB, GAE, AWS.

Writing and presentation: Microsoft Office (Word, Power Point, Visio, Excel), LATEX, Keynote, Photoshop, Inkscape.

Soft: Verbal and non-verbal communication, leadership, problem solving, critical thinking, self-management, creative, initiative, emotional intelligence.

Open Source Contributions

- ANALYSE (Add-on of learNing 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 wards 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 accesible 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)

References

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

- o Massachusetts Institute of Technology: Prof. Justin Reich (jreich@mit.edu)
- Universidad Carlos III of Madrid: Prof. Carlos Delgado Kloos (cdk@it.uc3m.es)
- o Monash University: Prof. Dragan Gašević (dgasevic@acm.org)
- o University of Murcia: Prof. Gregorio Martínez Pérez (gregorio@um.es)
- o Weizmann Institute of Science: Dr. Giora Alexandron (giora.alexandron@weizmann.ac.il)