José A. Ruipérez
Valiente | Postdoctoral Associate

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Last update: December 19, 2018

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 Ph.D. 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   **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

Massachusetts Institute of Technology (MIT)   **Cambridge (MA)**
Postdoctoral Associate   *04/2018 – Present*

ExoClick   **Barcelona**
Data Scientist   *05/2017 – 03/2018*

Institute IMDEA Networks and Universidad Carlos III of Madrid   **Madrid**
Research Assistant and PhD candidate   *01/2014 – 05/2017*

University of Edinburgh   **Edinburgh**
Visiting Researcher   *09/2016 – 12/2016*

Massachusetts Institute of Technology (MIT)   **Cambridge (MA)**
Visiting Researcher   *06/2015 – 9/2015*

Universidad Carlos III of Madrid   **Madrid**
Research Assistant   *07/2012 – 01/2014*

Universidad Católica San Antonio of Murcia   **Murcia**
Research Intern   *03/2010 – 06/2010*

Accenture Technology Solutions   **Madrid**
Software Engineer   *12/2010 – 09/2011*

Multimedia Communications Vocento   **Murcia**
TV and Radio Technician   *06/2010 – 12/2010*

Awards, Honors and Grants

o 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 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].

o 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...
- 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 fellowship (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...
- 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].
- Paper [C6] was nominated for best full paper award.

Media Coverage and Press

Some news talking about me or my work:
- Interview in newspaper 'La verdad' - Link
- Some random news about awards and stuff: University UCAM – eMadrid network – Murcia.com IMDEA Networks
- 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 Cero Radio interview - Link
- Interview for BBVA Foundation - Link

Publications

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

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, 35(6). 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.

International Conferece Proceedings..

C16 **Ruipérez-Valiente, J. A.** and 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, 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

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-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

o 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:

o Marta Expósito Ventura. PhD Telematics Engineering at Univèrsitat 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

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

Professional Service

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

External Reviewer
- 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

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

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