

Juan Miguel Andres-Bray
Curriculum Vitae

Email: andresju@gse.penn.edu • Mobile: +1 (704) 443-1258

RESEARCH INTERESTS

Learning Analytics, Machine Learning, MOOCs, Replication, Affective Computing, Educ. Games

EDUCATION

12/2021 **Ph.D.**, Teaching, Learning, and Teacher Education
(Anticipated) *University of Pennsylvania*
Advisor: Ryan S. Baker, Ph.D.
Dissertation: Replication in Massive Open Online Course Research: Using the
MOOC Replication Framework

2014 **M.S.**, Computer Science
Ateneo de Manila University
Advisor: Ma. Mercedes T. Rodrigo, Ph.D.
Thesis: A Study of the Relationships Between Learning and Affect Trajectories
Within Newton's Playground

2011 **B.S.**, Computer Science
Specialization in Enterprise Systems
Ateneo de Manila University
Advisor: Ma. Mercedes T. Rodrigo, Ph.D.
Thesis: Emotiv EPOC in the Implementation of an Assistive Smart Room

PUBLICATIONS

Journal Papers

Richey, J.E., **Andres-Bray, J.M.L.**, Mogessie, M., Scruggs, R., Andres, J.M.A.L., Star, J.R.,
Baker, R.S., & McLaren, B.M. (2019). More confusion and frustration, better learning: The
impact of erroneous examples. *Computers & Education*, 139, 173-190.

Gardner, J., Brooks, C., **Andres, J. M.**, & Baker, R. S. (2018). MORF: A framework for
predictive modeling and replication at scale with privacy-restricted MOOC data. In *2018
IEEE International Conference on Big Data (Big Data)* (pp. 3235-3244). IEEE.

Andres, J.M.L., Baker, R.S., Siemens, G., Gašević, D., & Spann, C.A. (2017). Replicating 21
Findings on Student Success in Online Learning. *Technology, Instruction, Cognition, & Learning*.

Conference Papers

Richey, J. E., Zhang, J., Das, R., **Andres-Bray, J.M.**, Scruggs, R., Mogessie, M., Baker, R.S., &
McLaren, B.M. (2021). Gaming and Confrustion Explain Learning Advantages for a Math
Digital Learning Game. In *International Conference on Artificial Intelligence in Education* (pp.
342-355). Springer, Cham.

Zhou, Y., **Andres-Bray, J.M.**, Hutt, S., Ostrow, K., & Baker, R. S. (2021). A Comparison of Hints vs. Scaffolding in a MOOC with Adult Learners. In *International Conference on Artificial Intelligence in Education* (pp. 427-432). Springer, Cham.

Mogessie, M., Richey, J. E., McLaren, B. M., **Andres-Bray, J.M.L.**, & Baker, R. S. (2020). Confrustion and gaming while learning with erroneous examples in a decimals game. In *International Conference on Artificial Intelligence in Education* (pp. 208-213). Springer, Cham.

Richey, J. E., **Andres-Bray, J.M.L.**, Mogessie, M., Scruggs, R., Andres, J. M., Star, J.R., Baker, R.S., & McLaren, B. M. (2019). More confusion and frustration, better learning: The impact of erroneous examples. *Computers & Education*, 139, 173-190.

Joksimovic, S., Baker, R.S., Ocumpaugh, J., **Andres, J.M.L.**, Tot, I., Wang, E.Y., & Dawson, S. (2019). Automated identification of verbally abusive behaviors in online discussions. In *Proceedings of the Third Workshop on Abusive Language Online* (pp. 36-45).

Richey, J. E., McLaren, B. M., **Andres-Bray, J.M.**, Mogessie, M., Scruggs, R., Baker, R., & Star, J. (2019). Confrustion in Learning from Erroneous Examples: Does Type of Prompted Self-explanation Make a Difference?. In *International Conference on Artificial Intelligence in Education* (pp. 445-457). Springer, Cham.

Andres-Bray, J.M.L., Ocumpaugh, J. L., & Baker, R. S. (2019). Hello? Who is posting, who is answering, and who is succeeding in Massive Open Online Courses. In *EDM*.

Aleven, V., Sewall, J., **Andres, J.M.**, Popescu, O., Sottolare, R., Long, R., & Baker, R. (2019). Towards deeper integration of intelligent tutoring systems: one-way student model sharing between GIFT and CTAT. In *Proceedings of the 7th Annual Generalized Intelligent Framework for Tutoring (GIFT) Users Symposium*.

Gardner, J., Brooks, C., **Andres, J.M.**, & Baker, R. (2018). Replicating MOOC predictive models at scale. In *Proceedings of the Fifth Annual ACM Conference on Learning at Scale* (pp. 1-10).

Aleven, V., Sewall, J., **Andres, J.M.**, Sottolare, R., Long, R., & Baker, R. (2018). Towards adapting to learners at scale: integrating MOOC and intelligent tutoring frameworks. In *Proceedings of the Fifth Annual ACM Conference on Learning at Scale* (pp. 1-4).

Andres, J.M.L., Baker, R. S., Gašević, D., Siemens, G., Crossley, S. A., & Joksimović, S. (2018). Studying MOOC completion at scale using the MOOC replication framework. In *Proceedings of the 8th International Conference on Learning Analytics and Knowledge* (pp. 71-78).

Banawan, M. P., **Andres, J.M.L.**, & Rodrigo, M. M. T. (2017). Predicting Student Carefulness in an Educational Game for Physics Using Semi-supervised Learning. In *Proc. of the 15th National Conference on Information Technology Education* (pp. 19-21).

Ocumpaugh, J., **Andres, J.M.**, Baker, R., DeFalco, J., Paquette, L., Rowe, J., Mott, B., Lester, J., Georgoulas, V., Brawner, K., & Sottolare, R. (2017). Affect dynamics in military trainees using vMedic: From engaged concentration to boredom to confusion. In *International conference on artificial intelligence in education* (pp. 238-249). Springer, Cham.

Kai, S., **Andres, J.M.L.**, Paquette, L., Baker, R. S., Molnar, K., Watkins, H., & Moore, M. (2017). Predicting Student Retention from Behavior in an Online Orientation Course. *International Educational Data Mining Society*.

Aleven, V., Baker, R., Blomberg, N., **Andres, J.M.**, Sewall, J., Wang, Y., & Popescu, O. (2017). Integrating moocs and intelligent tutoring systems: edx, gift, and ctat. In *Proceedings of the 5th Annual Generalized Intelligent Framework for Tutoring Users Symposium, Orlando, FL, USA* (p. 11).

Banawan, M. P., Rodrigo, M. M. T., & **Andres, J.M.L.** (2017). Predicting Student Carefulness within an Educational Game for Physics using Support Vector Machines. In *Proc. of the 25th International Conference on Computers in Education* (pp. 62-67).

Palaoag, T.D., Rodrigo, M.M.T., **Andres, J.M.L.**, Andres, J.M.A.L., & Beck, J.B. (2016). Wheel-spinning in a Game-Based Learning Environment for Physics. 13th International Conference on Intelligent Tutoring Systems, Zagreb, Croatia, June 6-10, 2016.

Andres, J.M.A.L., **Andres, J.M.L.**, Rodrigo, M.M.T., Beck, J.B., & Baker, R.S. (2015). An Investigation of Eureka and the Affective States Surrounding Eureka Moments. 23rd International Conference on Computers in Education, Hangzhou, China, November 30-December 4, 2015.

Banawan, M.P., Rodrigo, M.M.T., & **Andres, J.M.L.** (2015). An Investigation of Frustration Among Students Using Physics Playground. 23rd International Conference on Computers in Education, Hangzhou, China, November 30-December 4, 2015.

Palaoag, T.D., Rodrigo, M.M.T., & **Andres, J.M.L.** (2015). An Exploratory Study of Persistence Markers Within a Game-Based Learning Environment. 23rd International Conference on Computers in Education, Hangzhou, China, November 30-December 4, 2015.

Andres, J.M.L., & Rodrigo, M.M.T. (2014). The Incidence and Persistence of Affective States While Playing Newton's Playground. 7th IEEE International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management, Palawan, Philippines, November 13-14, 2014.

Andres, J.M.L., Rodrigo, M.M.T., Sugay, J.O., Baker, R.S., Paquette, L., Shute, V.J., Ventura, M., & Small, M. (2014). An Exploratory Analysis of Confusion Among Students Using Newton's Playground. 22nd International Conference on Computers in Education, Nara, Japan, November 30-December 4, 2014.

Rodrigo, M.M.T., Grosch, M., & **Andres, J.M.L.** (2013). Media Usage by Filipino Students – An Empirical Study. 21st International Conference on Computers in Education, Bali, Indonesia, November 18-22, 2013.

Workshop Papers

Brooks, C., Baker, R., & **Andres, J.M.L.** (2017). Infrastructure for Replication in Learning Analytics. In *MLA/BLAC@ LAK*.

Andres, J.M.L., Rodrigo, M.M.T., Baker, R.S., Pacquette, L., Shute, V.J., & Ventura, M. (2015). Analyzing Student Action Sequences and Affect While Playing Physics Playground. 1st

International Workshop on Affect, Meta-Affect, Data, and Learning, Madrid, Spain, June 26, 2015.

Andres, J.M.L., Rodrigo, M.M.T., Sugay, J.O., Banawan, M.P., Paredes, Y.V.M., Dela Cruz, J.S., & Palaoag, T.V. (2015). More Fun in the Philippines? Factors Affecting Transfer of Western Field Methods to One Developing World Context. 6th International Workshop on Culturally-Aware Tutoring Systems, Madrid, Spain, June 22, 2015.

Andres, J.M.L., & Rodrigo, M.M.T. (2014). Learning and Affect Trajectories Within Newton's Playground. 3rd International Workshop on ICT Trends in Emerging Economies, Nara, Japan, December 1, 2014.

TEACHING AND RESEARCH APPOINTMENTS

2016-2021 **Research Fellow**, University of Pennsylvania

2015-2016 **Doctoral Research Fellow**, Teachers College, Columbia University

2015 **Research Assistant**, Ateneo de Manila University
Grant: Development and Deployment of Adaptive, Interactive, SMS-Based Modules for English

2015 **Information Systems Researcher**, Ateneo de Manila University
Grant: Stealth Assessment of Student Conscientiousness, Cognitive-Affective States, and Learning Using an Educational Game for Physics

2015 **Lecturer**, Ateneo de Manila University

2010-2013 **Research Assistant**, Ateneo de Manila University

COURSES TAUGHT

Spring 2015 **Mathematics for Computer Science II**, Ateneo de Manila University
The course covers number representation, graph theory, linear algebra, statistics, and optionally, numerical analysis. The course also teaches and uses the Python programming language.

Spring 2015 **Theory of Algorithms**, Ateneo de Manila University
The course focuses on the fundamental techniques used to design and analyze efficient algorithms. These techniques include greedy algorithms, divide-and-conquer algorithms, dynamic programming, and graph algorithms.

AWARDS

2013-2015 **Research Scholarship**, Department of Science and Technology – Engineering Research and Development for Technology (DOST-ERDT)

AFFILIATIONS

2016-present **Penn Center for Learning Analytics**

2015-2018 **Digital Learning Research Network**

2015-2017  **Interlab**

SERVICE

2018-2020 **Program Committee**, 7th-10th IEEE International Conference on Engineering, Technology, and Education

2018 **Organizer**, *replicate.education: A Workshop on Large-Scale Education Replication*, in conjunction with the 11th International Conference on Educational Data Mining

2016 **Sub-Reviewer**, 18th International Conference on Artificial Intelligence in Education

2016 **Program Committee**, 1st International Conference on Advanced Technologies Enhancing Education

2016 **Program Committee**, 1st International Conference on Wearable Technologies, Knowledge Development, and Learning

2015 **Program Committee**, 6th International Workshop on Culturally-Aware Tutoring Systems

PROGRAMMING BACKGROUND

Expert	Python, Java, C++, Racket, R
Advanced	PHP, SQL, AWS, Docker, SAS
Basic	Spark, HTML5, JavaScript