ZACHARY A. PARDOS

Assistant Professor, Graduate School of Education and School of Information (50/50)
zp@berkeley.edu

Education
2006, BS, Computer Science – Worcester Polytechnic Institute
2012, PhD, Computer Science – Worcester Polytechnic Institute
2013, PostDoc, Computer Science / Physics – Massachusetts Institute of Technology

Research Interests
Knowledge Representation, Big Data in Education, Learning Analytics, Data Mining, Education
Data Science, Digital Learning Environments, Cognitive Modeling, Representation Learning,
Knowledge Tracing, Formative Assessment, Intelligent Tutoring Systems, Massive Open Online
Courses, Machine Learning, Computational Social Sciences, Psychometrics

Professional History
July 2013- Present, Assistant Professor - University of California, Berkeley
2012-2013, Postdoctoral Associate - Massachusetts Institute of Technology

Awards and Honors
2014, Elected to the Executive Committee of the Artificial Intelligence in Education Society
2013, Best Student Paper (co-author), Educational Data Mining Conference, Memphis
2009, Best Student Paper (first author), Educational Data Mining Conference, Spain
2008-2012, National Science Foundation Graduates in K-12 Education Fellowship
2007-2008, Department of Education Graduates in Areas of National Need Fellowship

Selected Professional Activity
2016, Panelist – National Academy of Education: Big Data and Privacy Workshop, Panel on
    Learner Process Data, Washington, D.C.
2015, Keynote - ACT's Insight Analytics and Emerging Technologies Symposium
2015, Seminar Speaker – Educational Testing Service
2014, Colloquium Speaker - School of Information Sciences, University of Pittsburgh
2015, Editorial Board – Journal of Educational Data Mining & Int. Journal of AI in Education
2014, Panelist - White House/OSTP: Big Data and Privacy Workshop, Berkeley
2014, Speaker – UC Office of the President, UC eNGAGE Education Technology Summit
2014, Program Co-Chair, International Conference on Educational Data Mining, London

Reviewing

Journal
Computers and Education
Int. Journal of Artificial Intelligence in Education
Journal of Educational Data Mining
Journal of Learning Analytics
PNAS, PLOS One
The Internet and Higher Education
Transactions on Interactive Intelligent Systems
Transactions on Learning Technologies

Handbook of Educational Data Mining
Handbook of Learning Analytics and EDM

Conference
Educational Data Mining '09-'18
Artificial Intelligence in Education '13-'18
Learning @ Scale '14, '16-'18
Learning Analytics and Knowledge '14-'18
Intelligent Tutoring Systems '16, '18
Int. Conf. of the Learning Sciences '18

Sponsored Projects

2015-2017, National Science Foundation, BIGDATA: EAGER: *Deep Learning in Higher Education Big Data to Explore Latent Student Archetypes and Knowledge Profiles*. Sponsor Award ID: 1547055. PI. Total: $289,888.

2015-2017, National Science Foundation, Collaborative Research: *Personalizing Recommendations in a Large-Scale Education Analytics Pipeline*. Sponsor Award ID: 1446641. PI. Total: $99,999.

2015-2016, Bill & Melinda Gates Foundation / Smart Sparrow LLC, *Next Generation Courseware Challenge: Inspark Science Network for Postsecondary Success in Entry Level Science for Disadvantaged Students*. UC SPO ID: 038528-002. PI. Total: $88,000.

2015, Bill & Melinda Gates Foundation, *Development of a Dynamic Knowledge Map Visualization for K-12 Teachers*. UC SPO ID: 038286-002. PI. Total: $32,311.

2013-2015, Department of Education, *Design and Development of a Dynamic Learning Maps Alternative Assessment System*. UC SPO ID: 036329-002. PI. Total: $119,626.

2014, Google, Google Faculty Research Grant, *Scaling Cognitive Modeling to Massive Open Environments*. PI. Total: $18,000.

Journal Articles

Pardos, Z.A. (2017) Big Data in Education and the Models that Love Them. *Current Opinion in Behavioral Sciences*. Vol 18, 107-113.

Pardos, Z.A., Horodyskyj, L. (2017) Analysis of Student Behaviour in Habitable Worlds Using Continuous Representation Visualization. *arXiv CoRR preprint*, abs/1710.06654.

Pardos, Z. A., Whyte, A., & Kao, K. (2016) moocRP: Enabling Open Learning Analytics with an Open Source Platform for Data Distribution, Analysis, and Visualization. *Technology, Knowledge and Learning*, Vol 21(1), 75-98

Pardos, Z. A. (2015) Commentary On "Beyond Time-on-Task: The Relationship Between Spaced Study and Certification in MOOCs." *Journal of Learning Analytics and Knowledge*. Vol 2(2). Pp. 70-74 ***Invited article commentary***

Koedinger, K. R., D'Mello, S., McLaughlin, E. A., Pardos, Z. A., Rosé, C. P. (2015) Data mining and education. *WIREs Cognitive Science*. doi: 10.1002/wcs.1350

Pardos, Z.A., Baker, R.S.J.d., San Pedro, M.O.C.Z., Gowda, S.M., Gowda, S.M. (2014) Affective States and State Tests: Investigating How Affect and Engagement during the School Year Predict End-of-Year Learning Outcomes. Journal of Learning Analytics, 1(1), 107–128

Rau, M.A., Aleven, V., Rummel, N., & Pardos, Z. (2014). How Should Intelligent Tutoring Systems Sequence Multiple Graphical Representations of Fractions? A Multi-Methods Study. *International Journal of Artificial Intelligence in Education*. 24(2), 125-161.

Pardos, Z.A., Gowda, S. M., Baker, R. S.J.D., Heffernan, N. T. (2012) The Sum is Greater than the Parts: Ensembling Models of Student Knowledge in Educational Software. In *ACM's Knowledge Discovery and Datamining (KDD) Explorations*, 13(2)

Pardos, Z.A., Dailey, M. & Heffernan, N. (2011) Learning what works in ITS from non---traditional randomized controlled trial data. *The International Journal of Artificial Intelligence in Education*, 21(1---2):45---63.

Razzaq, L., Heffernan, N.T., Feng, M., Pardos, Z.A. (2007) Developing Fine---Grained Transfer Models in the ASSISTment System. *Journal of Technology, Instruction, Cognition, and Learning*, Vol. 5. Number 3. Old City Publishing, Philadelphia, PA. 2007. Pages 289---304.

Book Chapters

Tang, S., Peterson, J., and Pardos, Z. (2017). Predictive Modelling of Student Behaviour Using Granular Large-Scale Action Data. In Lang, C., Siemens, G., Wise, A. F., and Gaevic, D., editors, *The Handbook of Learning Analytics*, pages 223–233. Society for Learning Analytics Research (SoLAR), Alberta, Canada, 1st edition.

Pardos, Z. A., Heffernan, N. T., Anderson, B., Heffernan, C. (2010) Using Fine Grained Skill Models to Fit Student Performance with Bayesian Networks. In C. Romero, S. Ventura, S. R. Viola, M. Pechenizkiy and R. S. J. Baker (eds.) *Handbook of Educational Data Mining*. CRC Press. Pages 417---426.

Conference Proceedings (stringently refereed)

Luo, Y., Pardos, Z.A. (accepted) Diagnosing University Student Subject Proficiency and Predicting Degree Completion in Vector Space. To appear in the *Proceedings of the Eighth AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI-18)*.

Pardos, Z.A., Dadu, A. (2017) Imputing KCs with Representations of Problem Content and Context. In *Proceedings of the 25th Conference on User Modeling, Adaptation and Personalization (UMAP)*. Bratislava, Slovakia. ACM. Pages 148-155.

Pardos, Z.A., Tang, S., Davis, D., Le. C.V. (2017) Enabling Real-Time Adaptivity in MOOCs with a Personalized Next-Step Recommendation Framework. *In Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale (L@S)*. ACM. Pages 23-32.

Pardos, Z. A., & Nam, A. J. H. (2017). The iSchool of Information and its Relationship to Computer Science at UC Berkeley. In *iConference 2017 Proceedings* (pp.309-316). https://doi.org/10.9776/17030

Sharma, K., Jermann, P., Dillenbourg, P., Rau, M., Pardos, Z. A., Schneider, B., D'Angelo, S., Gergle, D., & Prieto, L. (2017). CSCL and Eye-tracking: Experiences, Opportunities and Challenges. In B. K. Smith, M. Borge, E. Mercier & K. Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL)* 2017 (Vol. 2, pp. 727-734). Philadelphia, PA: International Society of the Learning Sciences.

Pardos, Z.A. & Xu, Y. (2016) Improving efficacy attribution in a self-directed learning environment using prior knowledge individualization. In Dawson, S., Drachsler, H., and Rosé, C. (eds.) *Proceedings of the Sixth International Conference on Learning Analytics & Knowledge* (pp. 435-439). Edenborough, UK. ACM.

Pardos, Z. A. & Kao, K. (2015). moocRP: An Open-source Analytics Platform. In Woolf, B., Russell, D. and Kiczales, G. (eds.) *Proceedings of the 2nd International ACM Conference on Learning @ Scale* (pp. 103-110). Vancouver, CA. ACM.

MacHardy, Z., Pardos, Z.A. (2015) Evaluating The Relevance of Educational Videos using BKT and Big Data. In Romero, C. and Pechenizkiy, M. (eds.) *Proceedings of the 8th International Conference on Educational Data Mining* (pp. 424-427). Madrid, Spain.

Tang, S., Gogel, H., McBride, E., Pardos, Z.A. (2015) Desirable Difficulty and Other Predictors of Effective Item Orderings. In Romero, C. and Pechenizkiy, M. (eds.) *Proceedings of the 8th International Conferenceon Educational Data Mining* (pp. 416-419). Madrid, Spain.

Corrigan, S., Barkley, T., & Pardos, Z. (2015). Dynamic Approaches to Modeling Student Affect and its Changing Role in Learning and Performance. In Bontchieva, K. and Ricci, F. (eds.) *Proceedings of the 23rd International Conference on User Modeling, Adaptation and Personalization* (pp. 92-103). Springer.

Peterson, J., Pardos, Z., Rau, M., Swigart, A., Colin, G., McKinsey, J. (2015). Understanding Student Success in Chemistry using Gaze Tracking & Pupillometry. In Conati, C. Heffernan, N., Mitrovic, A., and Verdejo, M. F. (eds.) *Proceedings of the Artificial Intelligence in Education Conference* (pp 358-366). Madrid, Spain. Springer.

Pardos, Z.A., Bergner, Y., Seaton, D., Pritchard, D.E. (2013) Adapting Bayesian Knowledge Tracing to a Massive Open Online College Course in edX. D'Mello, S. K., Calvo, R. A., and Olney, A. (eds.) *Proceedings of the 6th International Conference on Educational Data Mining (EDM)*. Memphis, TN. Pages 137---144. **Best paper nominated*

Falakmasir, M. H., Pardos, Z. A., Gordon, G. J., Brusilovsky, P. (2013). A Spectral Learning Approach to Knowledge Tracing. In D'Mello, S. K., Calvo, R. A., and Olney, A. (eds.) *Proceedings of the 6th International Conference on Educational Data Mining (EDM).* Memphis, TN, U.S.A. Pages 28---34 **Best student paper winner*

Pardos, Z.A., Baker, R.S.J.d., San Pedro, M.O.C.Z., Gowda, S.M., Gowda, S.M. (2013) Affective states and state tests: Investigating how affect throughout the school year predicts end of year learning outcomes. In Suthers, D.D., Verbert, K., Duval, E. & Ochoa, X. (eds.) *Proceedings of the 3rd International Conference on Learning Analytics and Knowledge (LAK)*. Leuven, Belgium. ACM. Pages 117---124.

Pardos, Z.A., Trivedi, S., Heffernan, N. T., Sarkozy, G. (2012) Clustered Knowledge Tracing. In Cerri, S.A., Clancey, W.J. (eds.) *Proceedings of the 11th International Conference on Intelligent Tutoring Systems (ITS)*. Crete, Greece. Pages 405---410.

Trivedi, S. Pardos, Z., Sarkozy, G. & Heffernan, N.T. (2012) Co---Clustering by Bipartite Spectral Graph Partitioning for Out---Of---Tutor Prediction. In Yacef, K., Zaïane, O., Hershkovitz, H., Yudelson, M., and Stamper, J. (eds*.) Proceedings of the 5th International Conference on Educational Data Mining (EDM).* Crete, Greece. Pages. 33---40.

Karlovcec, M., Cardova---Sanchez, M., Pardos, Z.A. (2012) Knowledge Component Suggestion for Untagged Content in an Intelligent Tutoring System. In Cerri, S.A., Clancey, W.J. (eds.) *Proceedings of the 11th International Conference on Intelligent Tutoring Systems (ITS)*. Crete, Greece. Springer. Pages 195---200.

Pardos, Z.A., Wang, Q. Y., Trivedi, S. (2012) The real world significance of performance prediction. . In Yacef, K., Zaïane, O., Hershkovitz, H., Yudelson, M., and Stamper, J. (eds.) *Proceedings of the 5th International Conference on Educational Data Mining (EDM)*. Crete, Greece. Pages 192---195.

Yumeng, Q., Pardos, Z.A., Heffernan, N.T. (2012) Towards data driven user model improvement. In Youngblood, M.G., McCarthy, P. (eds.) *Proceedings of the 25th annual Florida Artificial Intelligence Research Society Conference (FLAIRS)*. Marco Island, FL.

Pardos, Z.A., Heffernan, N.T. (2012) Tutor Modeling vs. Student Modeling. In *Proceedings of the 25th annual Florida Artificial Intelligence Research Society Conference.* Marco Island, FL. AAAI. Pages 420---425 ***Invited article**

Gowda, S., Pardos, Z.A., Baker, S.J.D.R. (2012) Content learning analysis using the moment---by---moment learning detector. In Cerri, S.A., Clancey, W.J. (eds*.) Proceedings of the 11th International Conference on Intelligent Tutoring Systems (ITS)*. Crete, Greece. Springer. Pages 434---443.

Rau, M., Pardos, Z.A. (2012) Interleaved Practice with Multiple Representations: Analyses with Knowledge Tracing Based Techniques. In Yacef, K., Zaïane, O., Hershkovitz, H., Yudelson, M., and Stamper, J. (eds*.) Proceedings of the 5th International Conference on Educational Data Mining (EDM).* Crete, Greece. Pages 168---171.

Pardos, Z. & Heffernan, N. (2011) KT‑‑‑IDEM: Introducing Item Difficulty to the Knowledge Tracing Model. In Konstant et al. (eds.) *Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization* (UMAP). Girona, Spain. Springer. Pages 243‑‑‑254.

Feng, M., Heffernan, N., Pardos, Z. & Heffernan, C. (2011) Establishing the value of dynamic assessment in an online tutoring system In Pechenizkiy, M., Calders, T., Conati, C., Ventura, S., Romero , C., and Stamper, J. (eds.) *Proceedings of the 4th International Conference on Educational Data Mining*. Eindhoven, Netherlands. Pages 295‑‑‑300.

Trivedi, S., Pardos, Z. & Heffernan, N. (2011) Clustering Students to Generate an Ensemble to Improve Standard Test Score Predictions In Biswas et al (eds.) *Proceedings of the 15th bi‑‑‑annual Artificial Intelligence in Education Conference (AIED)*. Springer. LNAI 6738. Pages 328–336.

Trivedi, S., Pardos, Z., Sarkozy, G. & Heffernan, N. (2011) Spectral Clustering in Educational Data Mining. In Pechenizkiy, M., Calders, T., Conati, C., Ventura, S., Romero , C., and Stamper, J. (eds.) *Proceedings of the 4th International Conference on Educational Data Mining (EDM)*. Pages 129‑‑‑138.

Qiu, Y., Qi, Y., Lu, H., Pardos, Z. & Heffernan, N.T. (2011) Does Time Matter? Modeling the Effect of Time with Bayesian Knowledge Tracing In Pechenizkiy, M., Calders, T., Conati, C., Ventura, S., Romero , C., and Stamper, J. (Eds.) *Proceedings of the 4th International Conference on Educational Data Mining (EDM)*. Pittsburgh, PA. Pages 139‑‑‑148.

Baker, R., Pardos, Z., Gowda, S., Nooraei, B., & Heffernan, N. (2011) Ensembling Predictions of Student Knowledge within Intelligent Tutoring Systems. In Konstant et al (Eds.) *Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization* (UMAP). Girona, Spain. Springer. Pages 13‑‑‑24.

Nooraei, B., Pardos, Z.A., Heffernan, N.T., Baker, R.S.J.d (2011) Less Is More: Improving the Speed and Prediction Power of Knowledge Tracing by Using Less Data. In Ventura, S., Romero , C., and Stamper, J. (eds.) *Proceedings of the 4th International Conference on Educational Data Mining (EDM).* Eindhoven, Netherlands. Pages 101‑‑‑110.

Pardos, Z. A., Heffernan, N. T. (2010) Modeling Individualization in a Bayesian Networks Implementation of Knowledge Tracing. In P. De Bra, A. Kobsa, D. Chin (eds.) *Proceedings of the 18th International Conference on User Modeling, Adaptation and Personalization (UMAP)*. Big Island of Hawaii. Pages. Springer. Pages 255‑‑‑266. ***Best student paper nominated***

Pardos, Z. A., Heffernan, N. T. (2010) Navigating the Parameter Space of Bayesian Knowledge Tracing Models: Visualizations of the convergence of the EM algorithm. In Baker, R.S.J.d., Merceron, A., Pavlik, P.I. Jr. (eds.) *Proceedings of the 3rd International Conference on Educational Data Mining (EDM)*. Pittsburg, PA. Pages. 161---170.

Pardos, Z. A., Dailey, M. N., Heffernan, N. T. (2010) Learning what works in ITS from non---traditional randomized controlled trial data. In V. Aleven, J. Kay, J. Mostow (eds.) *Proceedings of the 10th International Conference on Intelligent Tutoring Systems (ITS)*. Pittsburg, PA. Vol. 2. Pages 41---50. *Best student paper nominated*

Pardos, Z. A., Heffernan, N. T. (2009) Determining the Significance of Item Order in Randomized Problem Sets. In Barnes, Desmarais, Romero & Ventura (eds.) *Proceedings of the 2nd International Conference on Educational Data Mining (EDM)*. Cordoba, Spain. Pages 111---120. *Best student paper winner*

Pardos, Z. A., Heffernan, N. T. (2009) Detecting the Learning Value of Items In a Randomized Problem Set. In V. Dimitrova, R. Mizoguchi, B. du Boulay, A. Graesser (eds.) *Proceedings of the 14th International Conference on Artificial Intelligence in Education (AIED)*. Brighton, UK. IOS Press. Pages 499---507.

Pardos, Z. A., Beck, J., Ruiz, C. & Heffernan, N. T. (2008). The Composition Effect: Conjunctive or Compensatory? An Analysis of Multi---Skill Math Questions in ITS. In Baker, R.S.J.d., Barnes, T., Beck, J.E. (eds.) *Proceedings of the first International Conference on Educational Data Mining (EDM)*. Montreal, Canada. Pages 147---156.

Pardos, Z., Feng, M. & Heffernan, N. T. & Heffernan---Lindquist, C. (2007). Analyzing fine---grained skill models using bayesian and mixed effect methods. In Luckin & Koedinger (Eds.) *Proceedings of the 13th Conference on Artificial Intelligence in Education*. IOS Press. Pages 626---628

Pardos, Z. A., Heffernan, N. T., Anderson, B. & Heffernan, C. (2007). The effect of model granularity on student performance prediction using Bayesian networks. In Conati, C., McCoy, K.F., and Paliouras, G. (eds.) *Proceedings of the 11th International Conference on User Modeling*. Corfu, Greece. Springer Berlin. Pages 435---439.

Workshop and Poster Proceedings (refereed)

Tang, S., & Pardos, Z. A. (2017). Personalized Behavior Recommendation: A Case Study of Applicability to 13 Courses on edX. In *Adjunct Publication of the 25th Conference on User Modeling, Adaptation and Personalization* (pp. 165-170). ACM.

Le, C. V., Pardos, Z. A. (2016) Visualizing Online Learner Patterns. *Proceedings of the Workshop on Visualization for Deep Learning at the 33rd International Conference on Machine Learning (ICML)*. New York, NY.

Tang, S., Peterson, J. C., Pardos, Z. A. (2016) Deep Neural Networks and How They Apply to Sequential Education Data. In Aleven, V., Kay, J., and Roll, I. (eds.) *Proceedings of the Third ACM Conference on Learning @ Scale* (pp. 321-324). Edenborough, UK. ACM.

McBride, E., Vitale, J. M., Gogel, H., Martinez, M. M., Pardos, Z. A., Linn, M. C. (2016) Predicting Student Learning using Log Data from Interactive Simulations on Climate Change (2016) In Aleven, V., Kay, J., and Roll, I. (eds.) *Proceedings of the Third ACM Conference on Learning @ Scale* (pp. 185-188). Edenborough, UK. ACM.

Rau, M., Pardos, Z. A. (2016) Adding eye-tracking AOI data to models of representation skills does not improve prediction accuracy. In Snow, E. and Rowe, J. (eds.) *Proceedings of the 9th International Conference on Educational Data Mining*. Raleigh, North Carolina. USA.

Xu, Y., Johnson, M. J., Pardos, Z. A. (2015) Scaling cognitive modeling to massive open environments. In *Proceedings of the Workshop on Machine Learning for Education at the International Conference on Machine Learning* (ICML). Lille, France.

MacHardy, Z., Pardos, Z. A. (2015) Toward the Evaluation of Educational Videos using Bayesian Knowledge Tracing and Big Data. In Woolf, B., Russell, D. and Kiczales, G. (eds.) Proceedings of the *2nd International ACM Conference on Learning @ Scale* (pp. 347-350). Vancouver, CA. ACM.

Tang, S., McBride, E., Gogel, H., Pardos, Z. A. (2015) Item Ordering Effects with Qualitative Explanations using Online Adaptive Tutoring Data. . In Woolf, B., Russell, D. and Kiczales, G. (eds.) *Proceedings of the 2nd International ACM Conference on Learning @ Scale* (pp. 313-316). Vancouver, CA. ACM.

Dhanani, A., Lee, S., Phothilimthana, P., Pardos, Z.A. (2014) A Comparison of Error Metrics for Learning Model Parameters in Bayesian Knowledge Tracing. *In Proceedings of the Twenty Years of Knowledge Tracing Workshop at the 7th International Conference on Educational Data Mining (EDM)*. London, UK. Pages 153---154.

Rosenberg---Kima, R., Pardos, Z.A. (2014) Is This Data For Real? *In Proceedings of the Twenty Years of Knowledge Tracing Workshop at the 7th International Conference on Educational Data Mining (EDM)*. London, UK. Pages 141---145.

Pardos, Z.A. (2014) Inference and Analytics: Visualizing results from an adaptive MOOC simulation. *In Proceedings of the First Workshop on Machine Learning and*

Learning Analytics at the 4th Conference on Learning Analytics and Knowledge (LAK). Indianapolis, IN.

Pardos, Z. A., Yudelson, M. (2013) Towards Moment of Learning Accuracy. In *Proceedings of the Simulated Learners Workshop at the 16th International Conference on Artificial Intelligence in Education (AIED)*. Memphis, TN, U.S.A. Pages 61---70.

Veeramachaneni, K., Pardos, Z. A., O'Reilly, U. (2013) MOOCdb: Developing standards and backend support for MOOC Data Science. In *Proceedings of the First Annual Workshop on Massive Open Online Courses (moocshop) at the 16th International Conference on Artificial Intelligence in Education (AIED)*. Memphis, TN, U.S.A

Xiong, X., Pardos, Z. A., Heffernan, N.T. (2011) An Analysis of Response Time Data for Improving Student Performance Prediction. In *Proceedings of the workshop on Educational Data at the 17th Conference on Knowledge Discovery and Data Mining (ACM SIGKDD).* San Diego, CA.

Wang, Q., Kherer, Pardos, Z. A., Heffernan, N.T. (2011) Response Tabling – A simple and practical compliment to Knowledge Tracing. In *Proceedings of the workshop on Educational Data at the 17th Conference on Knowledge Discovery and Data Mining (ACM SIGKDD).* San Diego, CA.

Pardos, Z. A., Heffernan, N. T., Ruiz, C. & Beck, J. (2008) Effective Skill Assessment Using Expectation Maximization in a Multi Network T emporal Bayesian Network. In *Proceedings of The Young Researchers Track at the 9th International Conference on Intelligent Tutoring Systems*. Montreal, Canada.

Conference Papers (without proceedings)

Dubey, R., Pardos, Z. A. (2016) Understanding & predicting engagement in lecture videos. Paper presentation at the Workshop on Computational Models for Learning Systems and Educational Assessment. Las Vegas, NV.

Gogel, H., McBride, E., Vitale, J. M., Pardos, Z. A. (2016) Evaluating the Feasibility of Bayesian Knowledge Tracing for Online Instruction. Paper presentation in SIG-Online Teaching and Learning at the annual meeting of the American Educational Research Association (AERA). Washington, DC.

Pardos, Z. A. (2015) Measuring the Learning Quality of Open Educational Resources in Mathematics. Paper presentation in SIG-Advanced Technologies for Learning: Emerging Perspectives on Understanding Learning Behaviors in Digital Environments at the annual meeting of the American Educational Research Association (AERA). Chicago, IL.

Broaddus, A., Pardos, Z.A., Conrad, Z., & Esen, A. (2014). Validation of a mathematics

learning map using Bayesian network analysis. Paper presentation at the annual meeting of the National Council on Measurement in Education (NCME). Philadelphia, PA.

Kingston, N.M; Clark, A.K., Pardos, Z.A.; Lee, S.Y. (2014). Determining a reasonable starting place for an instructionally embedded dynamic assessment: Heuristic versus Bayesian Network Analysis. Paper presented at the annual meeting of the American Educational Research Association (AERA). Philadelphia, PA.

Pardos, Z.A. (2014) Learning What Works in MOOCs Without A/B Testing. Paper presented at the first NSF Conference on MOOCs in STEM: Exploring New Educational Technologies. San Jose, PA.