Clustering

Pardos, Z.A., Trivedi, S., Heffernan, N. T., Sarkozy, G. (accepted) Clustered Knowledge Tracing. To appear in the *Proceedings of the 11th International Conference on Intelligent Tutoring Systems*. Crete, Greece. 2012

Trivedi, S. Pardos, Z., Sarkozy, G. & Heffernan, N.T. (accepted) Co-Clustering by Bipartite Spectral Graph Partitioning for Out-Of-Tutor Prediction. To appear in *Proceedings of the 5th International Conference on Educational Data Mining*. Crete, Greece. 2012

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*. Springer. LNAI 6738, Pages. 328–336.

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Trivedi, S. Pardos, Z., Sarkozy, G. & Heffernan, N. T. (under review) Out of Sample Extensions to Spectral Clustering. *Springer Journal on Statistics and Computing*. ***WPI research award***

Knowledge Representation

Karlovcec, M., Cardova-Sanchez, M., Pardos, Z.A. (accepted) Knowledge Component Suggestion for Untagged Content in an Intelligent Tutoring System. To appear in *Proceedings of the 11th International Conference on Intelligent Tutoring Systems*. Crete, Greece. 2012

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Student modeling individualization and prediction

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., Heffernan, N. T. (In Press) Using HMMs and bagged decision trees to leverage rich features of user and skill from an intelligent tutoring system dataset. *Journal of Machine Learning Research W & CP. ***Invited article *WPI research award *KDD Cup solution article***

Pardos, Z.A., Wang, Q. Y., Trivedi, S. (accepted) The real world significance of performance prediction. To appear in *Proceedings of the 5th International Conference on Educational Data Mining*. Crete, Greece. 2012.

Yumeng, Q., Pardos, Z.A., Heffernan, N.T. (accepted) Towards data driven user model improvement. To appear in the *Proceedings of the 25th annual Florida Artificial Intelligence Research Society Conference*. 2012

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*. 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 2011). Pages 13-24.

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Feng, M., Heffernan, N., Pardos, Z. & Heffernan, C. 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*. Pages 295-300.

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*. Big Island of Hawaii. pp. 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*. Pittsburg, PA. pp. 161-170. **WPI research award**

Tutor evaluation (modeling content for its assessment and learning value)

Pardos, Z.A., Heffernan, N.T. (accepted) Tutor Modeling vs. Student Modeling. To appear in *Proceedings of the 25th annual Florida Artificial Intelligence Research Society conference*. 2012 **Invited article**

Gowda, S., Pardos, Z.A., Baker, S.J.D.R. (accepted) Content learning analysis using the moment-by-moment learning detector. To appear in the *Proceedings of the 11th International Conference on Intelligent Tutoring Systems*. Crete, Greece. 2012

Rau, M., Pardos, Z.A. (accepted) Interleaved Practice with Multiple Representations: Analyses with Knowledge Tracing Based Techniques. To appear in *Proceedings of the 5th annual International Conference on Educational Data Mining*. Crete, Greece. 2012.

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 2011). pp. 243-254.

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.

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Pardos, Z. A., Heffernan, N. T. (2009) Determining the Significance of Item Order in Randomized Problem Sets. In Barnes, Desmarais, Romero & Ventura (Eds.) In *Proceedings of the 2nd International Conference on Educational Data Mining*. Cordoba, Spain. pp. 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*. Brighton, UK. pp. 499-507.