

## Combining Logic and Probability: P-log perspective.

### **Abstract:**

The Dockum Group of sediments is a water-bearing formation of Triassic age underlying much of the Southern High Plains. There is considerable interest in exploring the utility of this water as an alternative source that can help prolong the life of the primary source of water in the High Plains of Texas. Water augmentation using brackish aquifers is widely being considered by regional water resources planners. This ongoing study seeks to establish a food-energy-water nexus framework to explore brackish groundwater resources for augmentation purposes, taking in to account the varied factors that would affect the process, such as quality, availability, spatial variability, value, users, and specific needs. Although some treatment may be needed depending on the specific use; our study, on its first phase presented here, has found the quality of the water in the formation to be useful to the three targeted users (oil & gas extraction, municipalities, and agriculture).

**Bio:** Evgenii Balai is a fifth-year Ph.D. student at Texas Tech University in the Computer Science Department. Before entering Texas Tech in 2012, he received an undergraduate degree in Software Engineering from Kyrgyz-Russian Slavic University (Kyrgyz Republic). He was a winner of several Kyrgyz national mathematics and programming contests and participated in various international olympiads in these areas, such as ACM ICPC 2010-2011, IMO 2006-2007, and others.

Evgenii's research interests are in investigating, designing and implementing knowledge representation languages capable of representing various logic and probabilistic knowledge. During his Ph.D. studies, Evgenii coauthored one journal, two conference and several workshop papers. One of his papers titled "Towards Answer Set Programming with Sorts" received a best paper award from LPNMR 2013 conference committee.