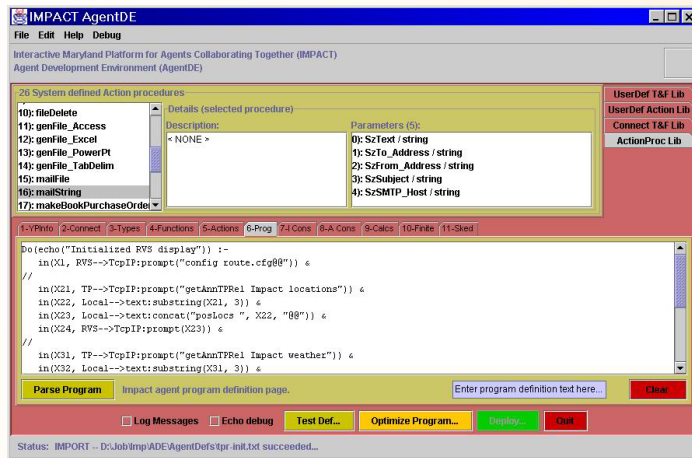


University of Maryland Contribution to CoAX 2002

<http://www.cs.umd.edu/projects/impact>

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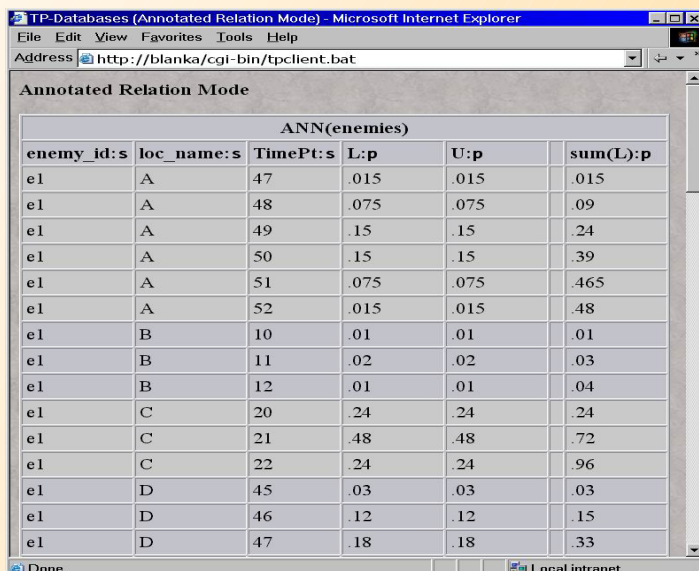
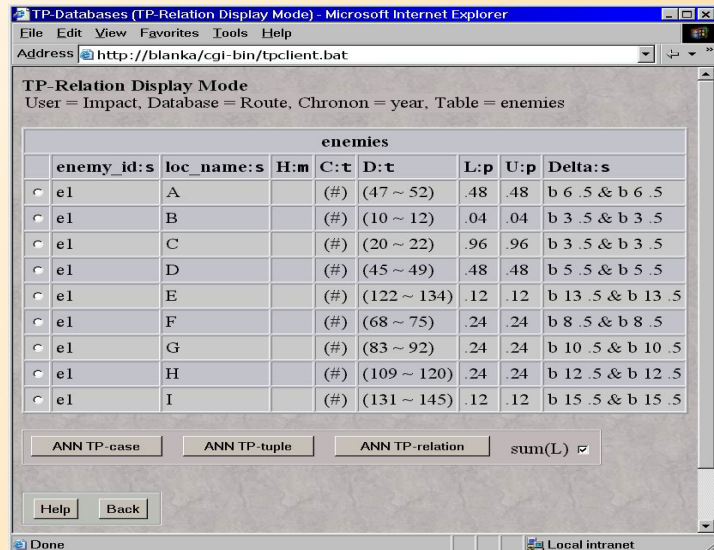


Description:

- ❑ Integration of IMPACT (the Interactive Maryland Platform for Agents Collaborating Together) with the CoABS Grid
- ❑ IMPACT enables agents that can efficiently store, manipulate, query, and reason over data that includes events, times, and probabilities
- ❑ Our IMPACT agents use probabilistic temporal data that is generated by our predictions for the future locations of targeted vehicles

Prediction - Creation:

- ❑ Generate several prediction models by varying the following features and then smoothing the results:
 - ❑ **Focus:** Observed positions or anticipated destinations (i.e., asset locations)
 - ❑ **Calculation method:** Linear, quadratic, periodic, and cubic regression for $X = f(t)$ and $Y = g(t)$
 - ❑ **Time window:** Number of observations to consider
- ❑ Combine predictions into a uniform model that excludes nogo areas



Prediction - Filtration:

- ❑ Can return a probability matrix where
 - ❑ **Identifier:** Match a given id
 - ❑ **Time slice:** Pertains to a single instant t
 - ❑ **Space:** Within a bounding box
- ❑ Can instead return windows of size WinX x WinY that also satisfy the following constraints:
 - ❑ **Probability:** Exceed a threshold
 - ❑ **Cardinality:** Return most n nonoverlapping windows
 - ❑ **Utility:** Only return windows that are within reach of some attacker

