

# Integrating the IAC Neural Network in Ontology Mapping

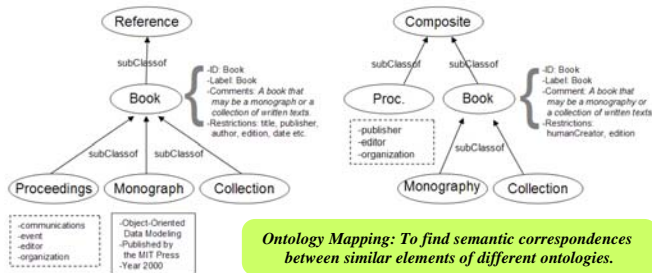
Ming Mao

Yefei Peng

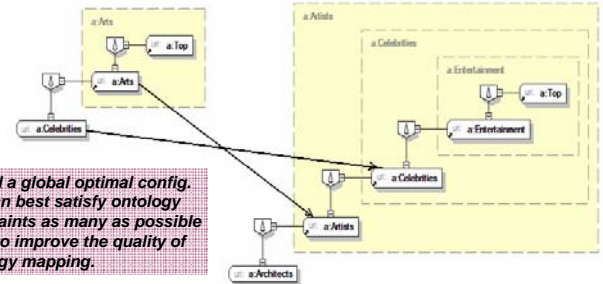
Michael Spring



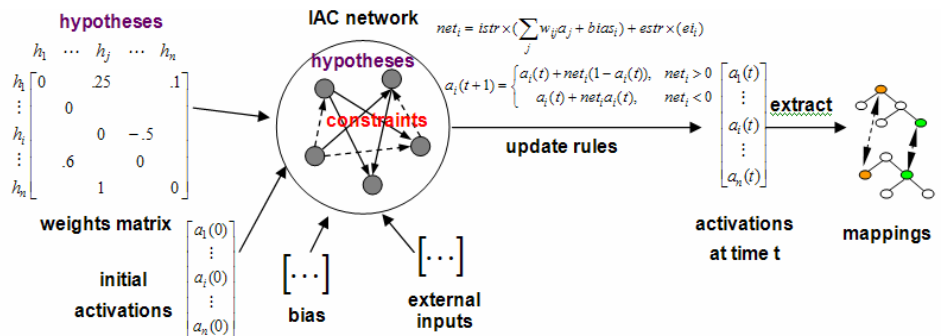
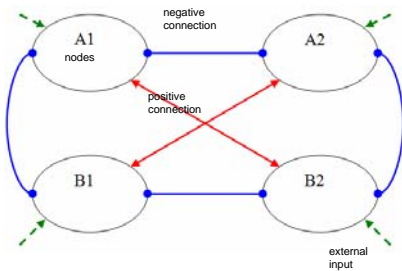
## Background



## Motivation



## The IAC Neural Network



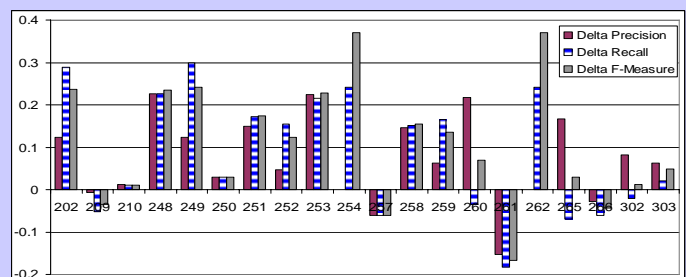
## Experiments

#	Constraints	Connection
1	Only 1-1 mapping is allowed.	negative
2	No crisscross mapping is allowed.	negative
3	If children elements match, then their parent elements match.	positive
4	If parent elements match, then their children elements match.	positive
5	If $e_{1i}$ match $e_{2i}$ , then $e_{1s}$ match $e_{2s}$ , where $e_{1i}$ and $e_{1s}$ , $e_{2i}$ and $e_{2s}$ are siblings in ontologies.	positive
6	If property elements match, then their domain elements match.	positive
7	If property elements match, then their range elements match.	positive
8	If class elements match, then their direct property elements match.	positive
9	If property elements match, then their mother-class elements match.	positive
10	If class elements match, then their individual elements match.	positive
11	If individual elements match, then their mother-class elements match.	positive
12	Two elements match if their <i>owl:sameAs</i> or <i>owl:equivalentClass</i> or <i>owl:equivalentProperty</i> elements match.	Positive

## OAEI Ontology Matching Campaign 2007 Benchmark Tests

### Datasets

### Results



### Conclusion

The NN-based constraint satisfaction dramatically improves the performance of preliminary mapping results on OAEI benchmark tests. Among 20 tests, 16 get improved on the f-measure. The biggest improvement of f-measure is .37. If we calculate the percentage improvement of the IAC neural network over the 20 tests, they are 13%, 24%, and 19% for precision, recall, and f-measure respectively.