



## Agents at CSSE

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## Key Areas

- Agent-Oriented Software Engineering  
*Leon Sterling, Adrian Pearce, Shanika Karunasekeera, Ed Kazmierczak*
- Perceptive and Intelligent Machines  
*Rao Kotagiri, James Bailey, Amy Unruh, Leon Sterling, Adrian Pearce*
  - Robust Transaction models
  - Ontology Reconciliation
  - Intelligent Content Retrieval



## Road to ROADMAP

- PhD project of Thomas Juan
- 2002 AAMAS paper from Juan et al. describing how to lift GAIA restrictions, adding zones, knowledge, hierarchy and openness
- 2003 AAMAS paper on custom methodologies
- AOSE 2003 Thomas developed a meta-model
- APSEC2003 Kevin described roles and agent classes



## Current/Recent Funded Projects

- *JSTAB with AdaceL* (LS, SG, CH)
- SITCRC - AOSE Methodology (LS, SK, AP, KC, tj)
- ARC Linkage - Invisible Intelligence (LS, DW, ao)
- ARC Discovery - Ontology matching (LS, KL)
- Pedagogical Agents (with Monash) (LS, SM, LS)
- ARC Linkage with Cycorp (LS, CL, KL)
- Intelligent Lablet (440 Demonstrator)
- *ARC Linkage with Hearne* (LS, KC)
- *DSTO - Agent Models* (LS, AP, SG, MP, CH)
- *Pipedream + Genoa collaboration* (LS, EK, VM)
- *ARC Discovery - Agent Design Patterns* (LS, EK)
- *ARC Linkage Microsoft* (SK, TJ, LS)



## Current/recent AOSE students

- Thomas Juan – overall methodology
- Kevin Chan – roles and agent classes
- Clint Heinze – agent design patterns
- Michael Papisimeon – environments
- Don Perugini – agents for logistics
- Susannah Soon - agents and role graphs
- Nicole Ronald – agents for pedestrian models
- Ayodele Oluyomi – interaction protocols
- Sruti Bhattacharya - testing
- Damien Wilman – invisible intelligence
- Anir Khare



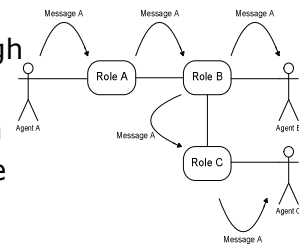
## Current/recent Ontology students

- Kendall Lister
- Maia Hristozova
- Muthukuruppan Annamalai
- Sharon Gao
- Hongen Lu
- Floriano Zini

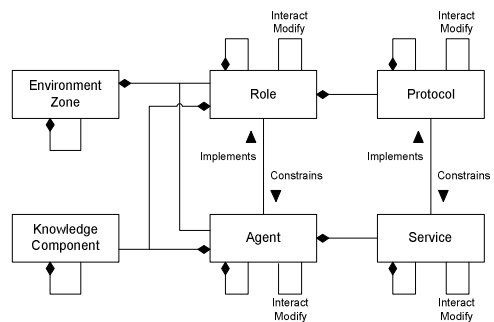


## ROADMAP Meta-Model

Agent interaction  
via message  
passing through  
their roles to  
ensure system  
constraints are  
maintained.



## ROADMAP Meta-Model





## ROADMAP Meta-Model

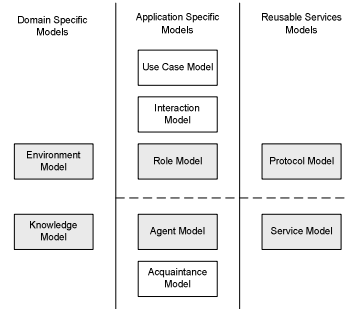
- Roles and agents are like interfaces and objects that implement the interfaces
- Services of agents are like methods of objects
- Protocols of interfaces are like function signatures in interfaces
- Roles constrain agents
- Protocols constrain services for fine-grain control



## ROADMAP Methodology KEY

Categories of models

All analysis models are carried into design to enable runtime roles and protocols



## ROADMAP Models

