

Multi-Agent Oriented Programming

– Agenda –

O. Boissier

Univ. Lyon, IMT Mines Saint-Etienne, LaHC UMR CNRS 5516, France

CPS2 M1 – Winter 2020



Objectives

- ▶ To get a brief overview of the programming of open and decentralized systems using a multi-agent oriented perspective
- ▶ To understand the problems, the questions that are addressed in the multi-agent domain
- ▶ To practice existing multi-agent technologies
- ▶ To acquire some skill in multi-agent oriented programming
- ▶ To provide the basis on which **Coordination Models** can be developed (CPS2 M2)

Content

- ▶ Existing models defining multi-agent oriented programming approach:
 - ▶ Agent models,
 - ▶ Environment models,
 - ▶ Organisation Models,
 - ▶ and Interaction models.
- ▶ Existing programming languages and platforms supported by these models
- ▶ Special focus on :
 - ▶ Open and decentralized AI Systems
 - ▶ Multi-Agent Based Simulation (MABS)

Timings

- ▶ January 24, 2020:
 - ▶ Introduction to Multi-Agent Oriented Programming (MAOP), JaCaMo Platform
 - ▶ Introduction to multi-agent systems and to multi-agent oriented programming (MAOP)
 - ▶ **Practical Work** on Introduction to the JaCaMo platform
- ▶ February 3, 2020:
 - ▶ Programming Open Decentralized AI Systems
 - ▶ Concepts and approaches for programming autonomous agents in a shared working environment
- ▶ February 7, 2020:
 - ▶ Programming Open Decentralized AI Systems
 - ▶ Concepts and approaches for programming working environment
- ▶ February 14, 2020:
 - ▶ Programming Open Decentralized AI Systems
 - ▶ Concepts and approaches for programming organisations of agents in a shared working environment
- ▶ February 21, 2020:
 - ▶ Programming Open Decentralized AI Systems
 - ▶ Conclusion

Grading Policy

- ▶ Practical Work (PW)
- ▶ Written Exam (WE)
- ▶ Grade = $(PW + WE)/2$

Work on MAOP and JaCaMo

in tight collaboration with

R.H. Bordini,
Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS), Porto Alegre, Brazil

J.F. Hübner,
Federal University of Santa Catarina (UFSC), Florianópolis, Brazil

A. Ricci
University of Bologna (UNIBO), Bologna, Italy

Acknowledgements

- ▶ Tutorials
 - ▶ @European Summer Schools (EASSS'10, EASSS'11, EASSS'12)
 - ▶ @Brazilian Agent School (WESAAC'11, WESAAC'12, WESAAC'13, WESAAC'14)
 - ▶ @AAMAS (2015), @IJCAI (2015)
 - ▶ @Agreement Technology Summer School (2017)
 - ▶ Graduate Programs (@ EMSE, @ UFSC, @PUCRS, @ Bologna University)
- ▶ Dagstuhl Seminars:
 - ▶ #12342 (2012), #08361 (2008), #06261 (2006)
- ▶ Bilateral Projects:
 - ▶ USP-COFECUB 98-04
 - ▶ CMIRA Rhône-Alpes Region 2010
- ▶ French National Project:
 - ▶ FORTRUST Project ANR 06-10
 - ▶ ETHICAA Project ANR 14-18