LIP6

Dpt : Decision making, Intelligent Systems and Operations Research.

The activities are focused on decision making, optimization problems and adaptive systems in the fields of Artificial Intelligence and Operations Research. They range from theoretical research (formal models and axiomatic analyses, algorithms and complexity) to the design of intelligent systems (adaptive agents, cognitive multiagent systems, optimization and decision systems, tutoring systems) in the perspective of industrial applications.

DESIR department is organized in four teams:

- *RO (Operations research)*

- *DECISION (Decision)*

- *SMA (Multi-agent systems)*

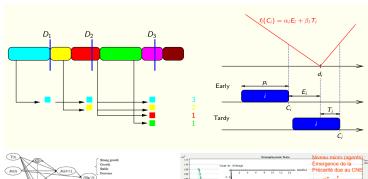- *MOCAH (Models and tools in knowledge engineering for human learning)*

Within the department, the main axes for cooperation between teams concern combinatorial optimization (DECISION/RO), algorithmic game theory and collective decision making (RO/DECISION/SMA), adaptive agents (SMA/MOCAH), decision and planning under uncertainty (DECISION/SMA).
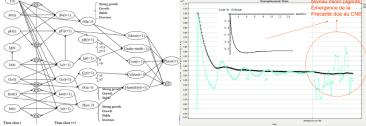
Scientific Projects and Networks :

- Network of excellence AGENTLINK
- Network of excellence EVONET
- Network of excellence KALEIDOSCOPE
- ActiveMath-EU (EAC-EA, E-learning)
- GDR Recherche Opérationnelle
- International GDR on «Algorithmic Decision Theory»
- ANR SKOOB (Probabilistic Relational Model)
- ANR LARDONS (learning and reasoning in MDPs, logic and probabilitic representation)
- GUEPARD (French National Research Agency project on Multiobjective Optimization)
- COMSOC (projet ANR, Computational Social Choice)
- RIAM DEEP (Dialogue based on Emotion, Experience and Personality)
- RIAM C3 (Design of an editorial chain of educational content)- CNRS Research group Operations Research
- ICEA (Integrating Cognition, Emotion and Autonomy in an adaptative robot)
- ARCUS (French Brazilian project on multiobjective modelling and simulation)
- Terra Dynamica project (FUI8)

Research-driven education:

- Master in Computer Sciences: Artificial intelligence and Decision making

- Master Sciences and Management: Specialization MC3

$$f_i(C_i) = \alpha_i E_i + \beta_i T_i$$

Industry Partners:

BOUYGUES TELECOM, Canal multimedia, DGA, DYNASIS, EDF, EDITIS, FRANCE TELECOM R&D, IFP, ILOG, ODILE JACOB MULTIMEDIA, QUANTIC DREAM, SPIROPS, THALES

Keywords

RO

Complexity, Combinatorial optimization, Scheduling, Satisfiability, Network routing, Algorithmic Game Theory.

DECISION

Algorithmic decision theory, Multiobjective optimization, Decision under risk and uncertainty, Graphical Models, Decision-support systems, Context, combinatorial optimization and LP.

SMA

Multi-agent systems, Coordination, Distributed decision making and planning, Negociation, Dialog and interaction, Simulation.

MOCAH

Interactive learning environments (ILE), Methodology of ressources design, semantic web (metadata, ontologies), cognitive modeling of the learner, serious games.