

Operations Research

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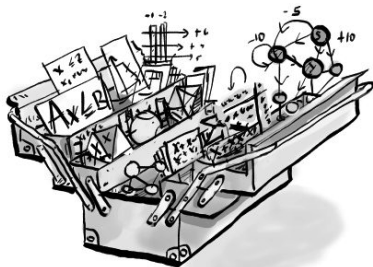
Operations Research

- Scientific methods for solving decision problems in organizations
- A toolbox of methods, techniques, algorithms, theorems, etc. to solve optimization problems

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Operations Research :
the science of better



dessin de Lionel Lagarde

Operations Research

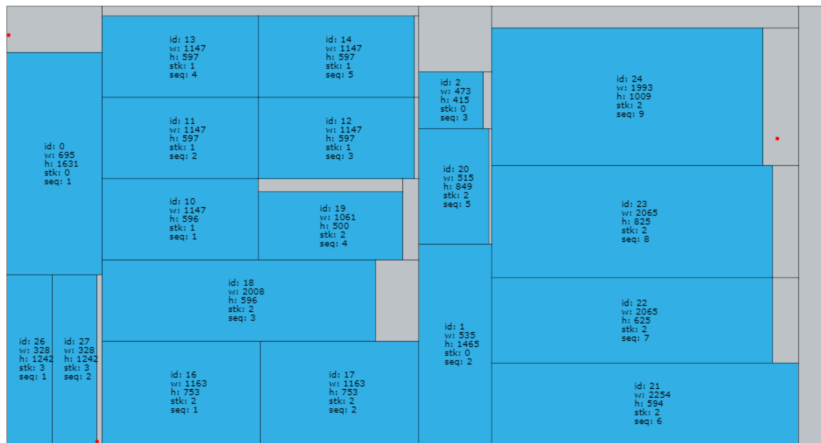
The Roadef/Euro challenges

<http://challenge.roadef.org/>

- 2020 Maintenance planning Problem (RTE)
- 2018 A cutting optimization problem (Saint Gobain)
- 2016 An inventory routing problem (Air Liquide)
- 2014 Trains don't vanish! (SNCF)
- 2012 Machine reassignment (Google)
- 2010 A large-scale energy management problem (EDF)
- 2009 Disruption management for commercial aviation (Amadeus)
- 2007 Technicians and interventions scheduling (France Telecom)
- 2005 A car sequencing problem (Renault)
- 2003 Missions of earth observation satellites (ONERA et CNES)
- 2001 Frequency assignment problem (CELAR, army)
- 1999 Inventory Management problem (Bouygues)

The Roadef/Euro challenges 2018

- Glass cutting optimization



The challenge ROADEF/EURO 2018

- Glass cutting optimization



Stabel allocation

Stable Mariage

Women : Alice, Bénédicte, Camille

Men : Elie, François, Gondran

Stabel allocation

Stable Mariage

Women : Alice, Bénédicte, Camille

Men : Elie, François, Gondran

Women preferences

A :	G	E	F
B :	F	E	G
C :	G	E	F

Men preferences

E :	A	B	C
F :	B	C	A
G :	A	C	B

How to make the couples

M Économie

ÉCONOMIE

Monde

Crise de l'euro

France

Entreprises

Marchés

Argent et Patrimoine

C

Le prix Nobel d'économie attribué aux Américains Alvin Roth et Lloyd Shapley

Le Monde.fr avec AFP et Reuters | 15.10.2012 à 13h41 • Mis à jour le 15.10.2012 à 18h58



rechercher un mot clé, une personne...



LE PLAYER
Écouter Fran

Actu | **USA 2012** | Culture & Médias | Sports | Vie pratique

En ce moment | Syrie - Mariage pour tous - Traité budgétaire européen

Recommander

1

Tweeter

3

Partager

Ajoutez aux favoris



+ A -

La formule Villani

Leonid Kantorovich, Prix Nobel d'économie en 1975

LE MERCREDI 21 DÉCEMBRE 2011 À 05:50 ★★★★★ (9 votes)



(Ré)écouter cette émission



Ajouter à ma playlist



00:00



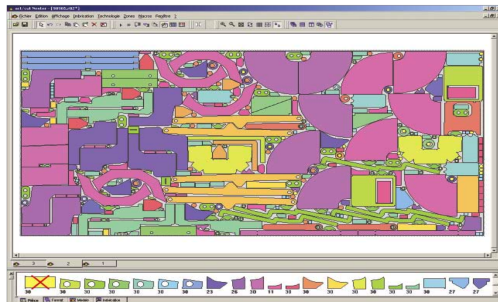
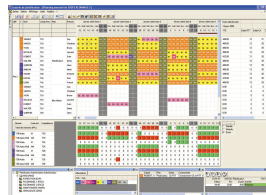
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Operations Research

Optimization methods

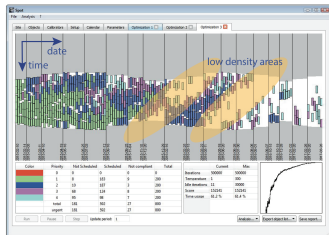
- Model a practical problem
- Solve (algorithms)
- Use/analyze the results



Operations Research

This course

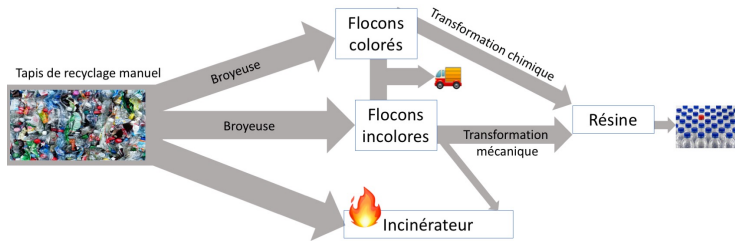
- Linear Programming
 - Simplex method, duality
- Mixed Integer Programming
 - Combinatorial optimization, modeling technics, Branch and bound, Industrial language
- Dynamic Programming
 - From theory to practice



Recherche Opérationnelle

At the end of this course, you will be able to

- Model a problem of biodiversity preservation
- Help in the dimensioning of a hydro-electric power plant
- Help local farmers organize their harvesting activities
- Organize the recycling of plastic waste...



Operations Research

For further information

- caseine.org
 - **Operations Research (UGA)**
 - Jeu de piste en Graphistan (in French)
 - Graphes (UGA)
- Master 2 ORCO



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