Programme

جامعة بجاية
Tasdawit n'Bgayet
Université de Béjaïa

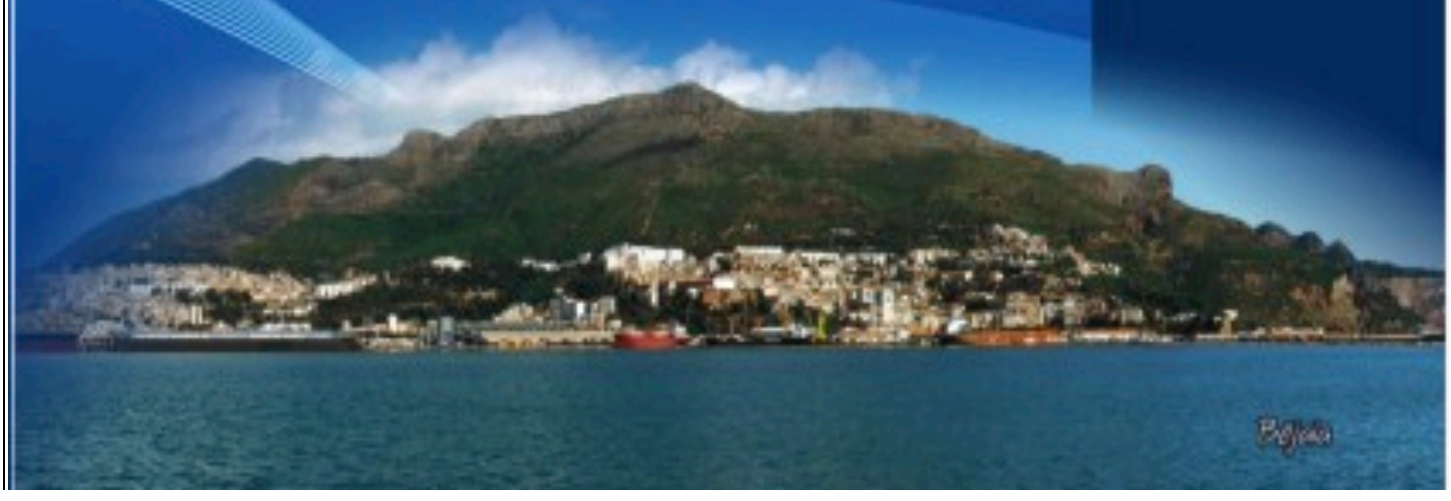
La M O S

Université Abderrahmane Mira de Béjaïa
Faculté des Sciences Exactes
Département de Recherche Opérationnelle
Unité de Recherche LaMOS

COSI'2014

Colloque sur l'Optimisation & les Systèmes d'Information

Béjaïa, 08 - 10 Juin 2014



Dimanche 08 Juin 2014

08:30 – 09:30. Accueil & Enregistrement

09:30 – 10:30. Cérémonie d'ouverture

10:30-12:00. Conférence Plénière 1 *(Auditorium)*

L'échec du vote majoritaire et comment le surmonter
Michel Balinski, Directeur de Recherche émérite (de classe exceptionnelle), CNRS - Laboratoire d'Econométrie de l'Ecole Polytechnique, France

12:00 - 14:00. Déjeuner

14:00 - 15:00. Conférence Plénière 2 *(Auditorium)*

An adaptive multiphase approach for very large unconditional and conditional p-median problems
Said Salhi, Professor of Management Science and Operational Research - Centre for Logistics & Heuristic Optimization (CLHO), Kent Business School, University of Kent, UK

15:00 – 16:30. Sessions Parallèles

- **15:00 – 16:30. Session 1A: Optimisation I** *(Salle 2 Bloc des enseignants)*

  1- *New families of facets for the independence system polytope*
  Chafia Boughani and Meziane Aider

  2- *DC optimization for solving a class of multiobjective bilevel problems*
  Aicha Anzi and Mohammed Said Radjef

  3- *An improving approach for the linear optimization based on modified Newton direction*
  El Amir Djeffal, Lakhdar Djeffal and Farouk Benoumelaz

- **15:00 – 16:30. Session 1B, Systèmes d'information** *(Auditorium)*

  1- *QoS-aware web service selection based on skylines' hierarchical clustering*
  Fethallah Hadjila, Amine Chikh and Fouzi Tahir

  2- *Conception et mise en oeuvre d'un bus applicatif parallèle et orienté service*
  Ridha Benosman and Kamel Barkaoui

  3- *An automated method to alignment business with IT architectures using PSO-GA based algorithm*
  Mohamed El Amine Chergui and Sidi Mohamed Benslimane

16:30 -17:00. Pause café

17:00-18:30. Sessions Parallèles

- **17:00-18:30. Session 2A : Optimisation II** *(Salle 2 Bloc des enseignants)*

  1- *A heuristic approach for the infrared heating in thermoforming process*
  Djamal Rebaine, Fouad Erchiqui, Nabil Nahas, Kahina Bachir Cherif and Fouad Slaoui-Hasnaoui

  2- *Hybrid biogeography based optimization with variable neighborhood search algorithm for the minimum interference frequency assignment problem*
  Yasmine Lahsinat and Dalila Boughaci

  3- *Jeux multicritères avec interactions entre critères*
  Khaled Maafa and Mohammed Said Radjef

- **17:00-18:30. Session 2B : Traitement d'images** *(Auditorium)*

  1- *Rigid mammogram registration for evaluation of neoadjuvant chemotherapy response*
  Salhi Amina, Melouah Nourredine, Layachi Soumia and Bouguettaya Amina

2- *Utilisation d'images SAR pour le suivi des déplacements de dunes*
Christophe Gouinaud, Atteib Ibrahim Doutoum, Pascale Gouinaud and Mamadou Kaba Traore

3- *A new system for Arabic handwriting recognition based on Kohonen networks and discrete Fourier transform*
Chergui Leila, Kef Maâmar and Salim Chikhi

Lundi 09 Juin 2014

09:00 - 10:00. Conférence Plénière 3 *(Auditorium)*

New perspectives in social data management
Sihem Amer-Yahia,
Directrice de Recherche CNRS - Laboratoire d'Informatique de Grenoble, France

10:00 - 10:30. Pause café

10:30-11:00. Session Posters

11:00 -13:00. Sessions Parallèles

- **11:00 -13:00. Session 3A : Clustering et apprentissage** *(Auditorium)*

1. *A perceptual classification-based blind blur quality assessment*
Fatma Kerouh and Amina Serir

2. *Une approche à base de Machine Learning pour la protection des micro-données*
Amine Belabed

3. *Méthode primale-duale pour l'apprentissage des SVM*
Samia Djemai, Belkacem Brahmi and Mohand Ouamer Bibi

4. *Approche par la théorie des jeux pour la résolution d'un problème de clustering*
Kahina Bouchama, Mohammed Said Radjef and Lakhdar Sais

- **11:00 -13:00. Session 3B : Optimisation dans le transport** *(Salle 2 Bloc des enseignants)*

1. *An algebraic approach for modeling and simulation of road traffic networks*
Nadir Farhi, Habib Haj-Salem and Jean-Patrick Lebacque

2. *Multiobjective bilevel optimization problem under generalized invexity*
Karima Bouibed, Hachem Slimani and Mohammed Said Radjef

3. *Optimisation de la consommation d'une voiture électrique : un cas simple*
Ouazna Oukacha, Nicolas Boizot, Jean-Paul Gauthier and Mohamed Aidène

4. *An optimal control problem with free final time for aircraft flight with wind*
Louadj Kahina, Spiteri Pierre, Aidene Mohamed and Messine Frédéric

13:00 - 15:00. Déjeuner

Après midi. ***Excursion***

Mardi 10 Juin 2014

09:00 - 10:00. Conférence Plénière 4 *(Auditorium)*

Recent advances in exact algorithms for the Capacitated Vehicle Routing Problem
Eduardo Uchoa, Professor of Production Engineering - Universidade Federal Fluminense, Niterói, Brazil

10:00 – 10:30. Pause café

10:30 -12:00. Sessions Parallèles

- **10:30 – 12:00 Session 4A : Théorie des graphes et ses applications** *(Salle 2 Bloc des enseignants)*

  1- *Efficient issues in the GGSSCA heuristic for strict strong graph coloring*
  Meriem Bensouyad, Nousseiba Guidoum and Djamel-Eddine Saïdouni

  2- *Découverte des sous graphes connexes fréquents fermés à étiquetage d'arêtes non redondant*
  Karabadji Nour El Islem and Hassina Seridi

  3- *L'indice point critique d'un dominant connexe*
  Tablennehas Kamel

- **10:30 – 12:00 Session 4B : Résolution de contraintes** *(Auditorium)*

  1- *Cooperative parallel decomposition guided VNS for solving weighted CSP*
  Abdelkader Ouali, Samir Loudni, Lakhdar Loukil and Yahia Lebbah

  2- *Optimal control of linear dynamical system with intermediate phase constraints*
  Azi Mourad and Bibi Mohand Ouamer

  3- *Towards a complete solver for constraint games*
  Nguyen Thi-Van-Anh and Arnaud Lallouet

12:00 - 14:00. Déjeuner

14:00 – 16:00. Sessions Parallèles

- **14:00 -16:00. Session 5A : Ontologies et optimisation** *(Auditorium)*

  1. *A competency location system based ontology*
  Leila Zemmouchi-Ghomari, Abdessamed Réda Ghomari and Keltoum Benlahareche

  2. *Branch and bound algorithm to maximize the system availability in parallel machines scheduling problem*
  Khoudi Asmaa, Berrichi Ali, Boudhar Mourad and Yalaoui Farouk

  3. *Combining instance-based and reasoning-based approaches for ontology matching*
  Khiat Abderrahmane and Moussa Benaissa

  4. *Scheduling with agreements: recent results*
  Mohamed Bendraouche and Mourad Boudhar

- **14:00 -16:00. Session 5B : Contrôle optimal** *(Salle 2 Bloc des enseignants)*

  1- *Méthode numérique pour résoudre un problème de contrôle optimal de processus thermiques de grande dimension*
  Fadila Kara, Pierre Spiteri, Frédéric Messine and Mohamed Aidene

  2- *Optimal control problem with boundary state constraints*
  Layla Ezzahri, Ali Boutoulout and Hamid Bourray

  3- *Optimal control of the parabolic linear partial differential equation by a domian decomposition method*
  Nadia Amel Messaoudi and Salah Manseur

  4- *Solving optimal control problems based on the Pontryagin's principle using the Adomian decomposition method*
  Akkouche Abderrahmane, Maidi Ahmed and Aidene Mohamed

16:00 – 16:30. Pause café

16:30 – 17:30. Table ronde *(Auditorium)*

Partenariat entre Laboratoires de Recherche et Entreprises

17: 30: Cérémonie de Clôture

Conférenciers invités COSI'2014

Michel Balinski
Chercheur à l'École polytechnique - Laboratoire d'Économétrie
Directeur de recherche émérite au CNRS
Lauréat du Prix de théorie John von Neumann 2013 (en anglais John von Neumann Theory Prize), décerné par l'Institute for Operations Research and the Management Sciences (INFORMS).

Titre : L'échec du vote majoritaire et comment le surmonter

Résumé : Dès l'enfance tout le monde vote entre deux alternatifs en choisissant un plutôt que l'autre, la majorité des voix déterminant le choix collectif. Cette pratique courante s'est transformée en une conviction que ce choix est réellement jugé le meilleur alternatif par un électorat ou un jury.

L'objectif de cette présentation est (1) de démontrer que le vote majoritaire peut bien faire un choix contraire à celui considéré le meilleur par un électorat ou un jury – même quand il s'agit de seulement *deux* candidats ou alternatifs – et (2) d'expliquer comment un électorat ou un jury peut – en utilisant *le jugement majoritaire* – designer le choix réellement évalué le meilleur par une majorité.

Références :

Michel Balinski et Rida Laraki, 2010. *Majority Judgment : Measuring, Ranking, and Electing,* MIT Press.

-- et --, 2013. « Jugement majoritaire versus vote majoritaire (via les présidentielles 2011-2012), » *Revue Française d'Economie* XXVII 11- 44.

-- et --, 2013. « How best to rank wines », in E. Giraud-Héraud and M.-C. Pichery (eds.), *Wine Economics: Quantitative Studies and Empirical Applications,* Palgrave.

-- et --, 2014. « Judge : Don't Vote ! » A paraître, *Operations Research*.

-- et --, 2014. « What *should* 'majority decision' mean? » 2014. A paraître, in Jon Elster and Stéphanie Novak (eds.), *Majority Decisions,* Cambridge University Press.

-- et --, 2014. « Majority measures ». En préparation.

Sihem Amer-Yahia
Directrice de Recherche at CNRS

Laboratoire d'Informatique de Grenoble, France
Web page: http://membres.liglab.fr/amery/

Title: New Perspectives in Social Data Management

Abstract: The web has evolved from a technology platform to a social milieu where factual, opinion and behavior data interleave. A number of social applications are being built to analyze and extract value from this data, encouraging us to adopt a data-driven approach to research.

I will describe a perspective on why and how social data management is fundamentally different from data management as it is taught in school today. More specifically, I'll talk about data preparation, data exploration and application validation.

This talk is based on published and ongoing work with colleagues at LIG, UT Austin, U. of Trento, U. of Tacoma, and Google Research.

Short biography

Sihem Amer-Yahia is DR1 CNRS at LIG in Grenoble. Her interests are at the intersection of large-scale data management and social Web analytics. Until July 2012, she was Principal Scientist at the Qatar Computing Research Institute where she led a group in SocialComputing. While there, she worked with local Universities on student mentoring and with Al Jazeera on news analytics. From 2006 to 2011, she was Senior Scientist at Yahoo! Research and worked on revisiting relevance models and top-k processing algorithms on Delicious, Yahoo! Travel, Yahoo! Personals and Flickr. Before that, she spent 7 years at at&t Labs in NJ, working on XML query optimization and XML full-text search. Sihem has served on the SIGMOD Executive Board, is a member of the VLDB and the EDBT Endowments and serves on the editorial boards of ACM TODS, the VLDB Journal and the Information Systems Journal. She was track chair of SIGIR 2013 and of PVLDB 2013. She is PC chair of EDBT 2014 and will be PC chair of BDA 2015 and SIGMOD Industrial 2015. Sihem received her Ph.D. in Computer Science from Paris-Orsay and INRIA in 1999, and her Diplôme d'Ingénieur from INI, Algeria.

Saïd Salhi
Professor of Management Science and Operational Research

Centre for Logistics & Heuristic Optimization (CLHO), Kent Business School, University of Kent, UK
Head of Management Science Group
Web page : http://www.kent.ac.uk/kbs/profiles/staff/salhi_said.html

Title: An Adaptive Multiphase Approach for Very Large Unconditional and Conditional p-Median Problems

Abstract: In this talk an overview of logistic system is first given followed by the importance of location analysis as one of the activity in the chain. The aim of the talk is to explore ways to tackle very large data sets when solving a class of location problems namely the p-median problem. Here the goal is find the optimal (or best) location of p facilities that serve all the customers. As the problem is very large aggregation techniques are briefly reviewed. A multiphase approach that incorporates demand points aggregation, Variable Neighbourhood Search (VNS) and an exact method is proposed for solving very large-scale unconditional and conditional *p*-median problems. The method consists of four phases. In the first phase several aggregated problems are solved with a "Mini VNS" to generate promising facility sites which are then used to solve a reduced problem in Phase 2 using VNS or an exact method based on an efficient 0-1 formulation. The new solution is then fed into an iterative learning process which tackles the aggregated problem (Phase 3). Phase 4 is a post optimisation phase applied to the original (disaggregated) problem. For the *p*-median problem, the method is tested on three types of datasets which consist of up to 89,600 demand points. The first two datasets are the BIRCH and the TSP datasets whereas the third is our newly geometrically constructed dataset that has guaranteed optimal solutions. The computational experiments show that the proposed approach produces very competitive results. The proposed approach is also adapted to cater for the conditional *p*-median problem with interesting results. Here there already exist q facilities in the system and the aim is to find the new location of p extra facilities.

Joint work with Drs Chandra Ade Irawan & Maria Paola Scaparra

Eduardo Uchoa
Professor of Production Engineering
Universidade Federal Fluminense, Niterói, Brazil.

Web page: http://www.inf.puc-rio.br/~uchoa/

Title: Recent advances in exact algorithms for the CVRP

Abstract:
The Capacitated Vehicle Routing Problem (CVRP) was defined by Dantzig and Ramser (1959) as follows. A fleet of vehicles with identical capacities must depart from a depot in order to deliver demands at a set of customers. The solutions are sets of routes starting and ending at the depot such that: (i) each customer is visited by a route, (ii) the sum of the demands of the customers in a route does not exceed the vehicle capacities. The goal is to minimize the total travel distance. Although dozens of other VRP variants (including features like time windows, multiple depots, heterogeneous fleet, split delivery, pickup and delivery, precedences, loading constraints, etc) are studied, CVRP occupies a central position in the vast VRP literature. Since it is the most classical and simpler variant, it is natural that many important new ideas were first tested in it.

In the early 2000's, the best performing algorithms for the CVRP were branch-and-cut algorithms that separated quite complex families of cuts identified by polyhedral investigation. At that time, some instances with only 50 customers could not be solved to optimality. Fukasawa et al. (2006) could solve all the instances from the literature with up to 134 customers, combining cut separation with column generation, in a so-called branch-cut-and-price algorithm. Since then, all the best CVRP algorithms are based in that combination. This talk reviews those algorithms, highlighting the contributions in Baldacci, Christofides and Mingozzi (2008), Baldacci, Mingozzi and Roberti (2011), Contardo (2012), and Ropke (2012). It also presents the very recent developments in Pecin (2014) that allowed breaking the 200 customer barrier.

Short bio: Eduardo Uchoa is Associate Professor of Production Engineering at Universidade Federal Fluminense, Niterói, Brazil. Professor Uchoa holds an undergraduate degree in Computer Science from Universidade Estadual de Campinas, Brazil and a Ph.D. on Operations Research from Pontifícia Universidade Católica do Rio de Janeiro, Brazil. He is currently ranked as Researcher Level 1 by the Brazilian funding agency CNPq and received two special grants as young scientist by the State of Rio de Janeiro. His research areas include the theory and application of integer programming approaches solving for large NP-hard combinatorial optimization problems. In particular, he had made significant contributions for the joint use of column and cut generation techniques, in the so called branch-cut-and-price algorithms. Professor Uchoa is author and co-author of several papers that have appeared in leading journals such as *Mathematical Programming, Mathematical Programming Computation, Computers and Operations Research, Annals of Operations Research, Networks, European Journal of Operational Research and Interfaces* and in conferences like *IPCO*.