Charles-Edmond Bichot
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Born the 20 November 1981
French nationality, single man.

Curriculum Vitae

Education

2004–now Ph.D. in computer science in the Laboratoire d'Optimisation Globale (Global Optimization Laboratory) of the École Nationale de l'Aviation Civile (French Civil Aviation University) and the Direction des Services de la Navigation Aérienne, Toulouse, France.

2005–2006 Master in politic science, geopolitic and international relations, from the University of Toulouse 1, Institut d'Études Politiques (Institute for the study of political science).

2003–2004 M.S. DEA (former french degree) in computer science from the University of Toulouse 3, LAAS-CNRS (Systems Design and Analysis Laboratory).

2001–2004 Engineer's degree in computer science and air traffic management from the École Nationale de l'Aviation Civile (French Civil Aviation University), Toulouse.

Research subjects

- Metaheuristics :
  - I create a new metaheuristic called Fusion Fission based on the physical nuclear process.
  - Use of common metaheuristic methods like simulated annealing, ants colonies or genetic algorithms.
- Graph partitioning :
  - Kernighan-Lin type methods.
  - Agglomerative methods.
  - Multilevel method.
  - Partitioning softwares : METIS, CHACO, JOSTLE, SCOTCH, GRACLUS, PARTY.
- Other stochastic problems :
  - Modeling of the European airspace partitioning into functional blocs.
  - Data mining.
  - Image segmentation.

Publications

Articles

[1] Charles-Edmond Bichot. A combined fusion fission and multilevel metaheuristic for graph partitioning. *European Journal of Operational Research (EJOR)*, 2007. in submission process.

[2] Charles-Edmond Bichot. A new method, the fusion fission, for the relaxed k-way graph partitioning problem, and comparisons with some multilevel algorithms. *Journal of Mathematical Modelling and Algorithms (JMMA)*, 2007. accepted for publication the 1st December 2006.

[3] Charles-Edmond Bichot, Jean-Marc Alliot, Nicolas Durand, and Pascal Brisset. Optimisation par fusion et fission. application au problème du découpage aérien européen. *Journal Européen des Systèmes Automatisés (JESA)*, 38(9-10) :1141–1173, 2004.

Theses

[4] Charles-Edmond Bichot. *Optimisation du découpage de l'espace aérien européen en blocs fonctionnels au moyen de métaheuristiques et de diverses méthodes de partitionnement de graphe*. PhD thesis, Institut National Politechnique de Toulouse, October 2007.

[5] Charles-Edmond Bichot. Optimisation du découpage de l'espace aérien par diverses métaheuristiques. Master's thesis, DEA Systèmes informatiques du Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS), July 2004.

Conferences with proceedings

[6] Charles-Edmond Bichot. The fusion fission metaheuristic. In *Proceedings of the 9th IEEE Congress on Evolutionary Computation*, September 2007. in submission process.

[7] Charles-Edmond Bichot. Application of fusion fission to document clustering. In *Proceedings of the 13th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, August 2007. in submission process.

[8] Charles-Edmond Bichot and Nicolas Durand. A tool to design functional airspace blocks. In *Proceedings of the 7th Air Traffic Management seminar (ATM)*, July 2007. accepted.

[9] Charles-Edmond Bichot and Nicolas Durand. Airspace block organization with metaheurisitics and partitioning packages. In *Proceedings of the 2nd International Conference on Research in Air Transportation (ICRAT)*, pages 103–110, June 2006.

[10] Charles-Edmond Bichot. Metaheuristics versus spectral and multilevel methods applied on an air traffic control problem. In *Proceedings of the 12th IFAC Symposium on Information Control Problems in Manufacturing (INCOM)*, pages 493–498, May 2006.

[11] Charles-Edmond Bichot. A metaheuristic based on fusion and fission for partitioning problems. In *Proceedings of the 9th International Workshop on Nature Inspired Distributed Computing (NIDISC), in conjunction with IEEE IPDPS*, April 2006.

[12] Charles-Edmond Bichot and Jean-Marc Alliot. Optimisation par colonies de fourmis appliqué au découpage de l'espace aérien européen en zones de qualification. In *Proceedings of the 3rd International conference on Research, Innovation and Vision of the Future (RIVF)*, pages 140–145, February 2005.

Conferences with abstracts

[13] Charles-Edmond Bichot. Un nouveau problème de partitionnement, le k-partitionnement de graphe relaxé. In *Congrès de la Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF)*, February 2007.

[14] Charles-Edmond Bichot. Application de la méthode de fusion fission à la segmentation d'image. In *Workshop Métaheuristiques (META)*, November 2006.

[15] Charles-Edmond Bichot. Métaheuristiques appliquées à un problème de k-partitionnement. In *Congrès de la Société Française de Recherche Opérationnelle et d'Aide à la Décision (ROADEF)*, February 2006.

[16] Charles-Edmond Bichot. Comparaison entre méthode d'optimisation par colonies de fourmis et méthode de fusion/fission pour le problème de découpage du ciel aérien européen. In *Journée évolutionnaire trimestrielles (JET)*, June 2005.

[17] Charles-Edmond Bichot and Jean-Marc Alliot. Optimisation par colonies de fourmis appliquée au découpage de l'espace aérien européen en zones de qualifications. In *Journées du GdR MACS, pôle STP*, October 2004.

Technical reports

[18] Charles-Edmond Bichot and Jean-Marc Alliot. A theoretical approach to defining the european core area. Technical report, LOG - ENAC/CENA, 2005.

Referee

- IEEE Congress on Evolutionary Computation (CEC 2007).
- European Journal of Operational Research (EJOR), special issue on "Metaheuristics in Transportation and Logistics".
- IFAC Symposium on Information Control Problems in Manufacturing (INCOM 2006).

Teaching experiences

Competitive examination corrector

Spring 2006, 2007 Corrector of the computer science part of the Concours Communs Polytechniques, a high level competitive examination for the entrance in French famous schools.

Teaching assistant

Spring 2005-2007 Undergraduate course "Functional programming (C & Caml programming languages)".
Spring 2005-2007 Undergraduate course "Algorithms (C & Caml programming languages)".
Summer 2006 Graduate course "Java programming language".
Autumn 2004-2006 Graduate course "Metaheuristics".
Autumn 2006 Graduate course "Process communications, UNIX systems".
Autumn 2004-2006 Graduate course "ADA programming language".
Winter 2004-2006 Graduate course "parallel programming in ADA".

Student projects supervision

Winter 2005 "Reorganization of air traffic control centers in France", project of four graduate student.
Winter 2006 "Modeling of an ant nest", project of four graduate student.

Other experiences

Training jobs

Feb–Aug 2004 Graduate training job in the Laboratoire d'Optimisation Globale, "Optimization of air space cut with the help of metaheuristics".
Jun–Aug 2002 Graduate training job in Thales Avionics Valance, "Modification of an helicopter inboard interface".
August 2001 Undergraduate workman training job in Airbus Toulouse, "Installation of A330 and A340 cockpits".

Associative experiences

2005–2006 Member of the organization team of the Dauphiné rally automobile and cultural.
April 2003 In charge of a one week GNU/Linux formation in Morocco.
2002–2003 Vice-president of the student association of the École Nationale de l'Aviation Civile (French Civil Aviation University).
2001–2002 President of the œnology club of the École Nationale de l'Aviation Civile