Lettre Mode, Juillet 2020

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Ecrire à lettre-mode-smai-request@emath.fr, en mettant suivant le cas subscribe ou unsubscribe dans l'objet.

Contributions

Envoyez vos contributions en format simple texte en remplissant le formulaire à l'adresse suivante :
http://www.lettremode.ovh,

ou par mail à l'adresse suivante :
contact@lettremode.ovh. Prière d'indiquer "pour la lettre MODE" dans l'objet du mail.

Site officiel et twitter SMAI-MODE
1) Call for interest: Numerical optimization (big data and machine learning applications)

De: Roberta Ghezzi  
Lien: http://www.mat.uniroma2.it/Progetto/

The Department of Mathematics at the University of Rome Tor Vergata invites expressions of interest for Senior (Tenure-Track) Assistant Professor ('RTD-B') and Tenured Associate Professor positions in the following area of Pure and Applied Mathematics:

a) Data Analysis, Statistics and Machine Learning,  
b) Historical and pedagogical aspects of mathematics,  
c) Numerical optimization with special focus on big data and machine learning applications.

See attached file: call-of-interest.pdf

2) Call for post-doctoral applications -- Optimization and machine learning for network slicing

De: Marcel Mongeau

The SARA team (http://www.laas.fr/SARA-EN/) at LAAS-CNRS (http://www.laas.fr/), Toulouse, France, is seeking a 1-year postdoc (possible extension to 2 years) to work on the research project ONSET. The project is funded by the French Defense Agency and is to be started in November 2020. The main objective of ONSET is to develop new optimization methods for the optimal design of network slices as well as new data-driven learning mechanisms for their dynamic reconfiguration (auto-scaling, load balancing and migration). The position is to be filled by February 2021 at latest. The selected candidate will join a research group composed of Olivier Brun (http://homepages.laas.fr/brun/), Pascal Berthou (http://homepages.laas.fr/berthou/) and Slim Abdellatif. The monthly gross salary is around 2,500 €. The selected candidate will be encouraged to apply to CNRS and Université de Toulouse in order to obtain a permanent appointment at LAAS.

Title: Optimal Network Slice management

Context:
Whilst earlier network generations have been designed as general-purpose connectivity platforms, future networks will have to support the specific needs of a plethora of new services developed by a variety of vertical industries (e.g., automotive, energy, food and agriculture, healthcare, or public transportation). These services will have a diverse range of requirements ranging from high reliability to ultra-low latency going through high bandwidth and mobility.

Network slicing has recently emerged as a key technique for sharing a single physical network infrastructure between multiple logical and independent networks that are configured to effectively meet the various services requirements. These logical networks, which are called network slices, can be used by third parties that do not possess their own network infrastructure to provide network services tailored to their specific needs. Each network slice is implemented as a chain of virtualized network functions (VNF) running on virtual machines inside an operator network or in centralized clouds. Each logical network is isolated from the others, independently managed/controlled, and can adapt quickly to the demand.

Orchestration is a key process for network slicing, which involves optimally selecting the physical resources to be used to fully meet service requirements (SLA: Service Level Agreement). Orchestration also allows performance to be maintained when demand evolves by monitoring performances and by reconfiguring as needed. The orchestration of logical networks however raises a number of conceptual difficulties. The objective of the ONSET project is to address these difficulties by developing:

1) New methods for planning the capacity of network slices as well as for selecting the physical resources on which they are deployed, considering quality of service and survivability requirements as well as priority between network slices,

2) Data-driven learning mechanisms for the dynamic reconfiguration of network slices (auto-scaling, load balancing and migration) so as to maintain satisfactory performance in spite of extremely variable load conditions,

3) A software environment for the simulation, performance evaluation and optimization of virtualized networks over a multi-domain and multi-technology physical infrastructure. This environment will integrate all the algorithms developed during the project for the planning and dynamic reconfiguration of network slices.

Candidate Profile:

The candidate must have:

- a PhD degree in computer science or a related field,

- excellent knowledge in the domain of communication networks,

- good skills in mathematical optimization theory, machine learning or stochastic modelling (queueing theory, MDPs,...),

- strong computer programming skills,
- good organizational and communication skills.

Application:

Each application must contain the following documents:

- a detailed CV
- a cover letter with a short description of previous works
- one or two references with contact addresses

Applications should be sent electronically to Olivier Brun (brun@laas.fr).

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3) PhD in Novel numerical methods for SDAE and applications

De      : Oana Silvia Serea

The Department of Computer Science, Electrical Engineering and Mathematical Sciences at Western Norway University of Applied Sciences, has a vacancy for a research fellow (PhD position) in “Novel numerical methods for stochastic differential algebraic equations and applications” for a period of 4 years.

The PhD research fellow will be part of the PhD programme in Computer Science: Software Engineering, Sensor Networks and Engineering Computing (https://ict.hvl.no). The research programme in Computer Science currently includes 20 professors and associate professors, more than 30 PhD and post-doctoral fellows, and a large number of master’s students.

For details please see

Deadline for applications 12th August 2020.

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4) PhD position in Toulouse on data-driven techniques and polynomial optimization for deep learning

De      : Victor Magron
Lien    : https://homepages.laas.fr/vmagron/sujets/PhD_data.pdf
Artificial and Natural Intelligence Toulouse Institute.
(4 years research project ANITI, 2019 - 2023)

* Positions. A PhD position is available in the MAC team at LAAS CNRS, Toulouse. This position is funded by the ANITI project (see above), under the lead of Dr. Milan Korda, Dr. Victor Magron and Dr. Jean-Bernard Lasserre.

* Summary of the research project. A large number of problems from diverse fields such as optimization, probability and statistics, dynamical systems or quantum physics can be tackled within the powerful and elegant framework of the Lasserre hierarchy, which allows one to solve challenging nonconvex and nonlinear problems by a sequence of convex optimization problems in a unified and very systematic fashion.
Additional research investigated the ability of Christoffel-Darboux kernels to capture information about the support of an unknown probability measure; a distinguishing feature of this approach is the ability to infer support characteristics based on the knowledge of finitely many moments of the underlying measure, which is precisely the information obtained from the Lasserre hierarchy.
A major open question remains whether the Lasserre hierarchy can be used in a data-driven setting, where the underlying model is unknown and only observed data are available. This project will investigate this direction, building on recent work. Progress in this direction would be an enabling factor in bringing the elegant and powerful tools of the Lasserre hierarchy to the realm of the present-day big-data applications, which are currently typically tackled using ad-hoc heuristic techniques with limited mathematical foundation.

More details can be found at https://homepages.laas.fr/vmagron/sujets/PhD_data.pdf

* Starting dates. At any time by the end of 2021.

* Required skills. A successful candidate will have a strong background in applied mathematics or physics, having a very good knowledge of probability and statistics as well as a working knowledge of convex optimization, real analysis and basic measure theory. Good programming skills are also required. The candidate should be highly motivated and creative. Knowledge of French does not constitute a pre-requisite.

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5) PostDoc at WIAS (Berlin), Optimization with PDEs

De      : Axel Kroener
Lien    : https://wias-berlin.de/jobs/job.jsp?lang=1&year=20&number=11

WIAS invites in the Research Group "Nonsmooth Variational Problems and Operator
Equations” (Head: Prof. Dr. M. Hintermüller) applications for a Research Assistant Position (f/m/d) (Ref. 20/11) to be filled at the earliest possible date.

Field of work: Optimization with partial differential equations. The holder of the position is qualified in a modern field of optimization with partial differential equations with the willingness to take on responsibility for interdisciplinary projects.

For more information see https://short.sg/j/6874006

Deadline: July 31st, 2020

6) Postdoc position in Toulouse, Landscapes of large scale problems with applications to machine learn

De : Michel Thera
Lien : http://cvgmt.sns.it/news/68/

http://cvgmt.sns.it/news/68/

The research project `` Landscapes of large scale problems with applications to machine learning » (Pls. J. Bolte, E. Pauwels, funded by U.S. Air Force) is seeking candidates for a post-doctoral research position in Toulouse (south of France) starting after August 2020.

Toulouse has a lively scientific environment in optimization and machine learning, with several very active centers and the recently created research institute ANITI.

Research lines within this project also include (but are not limited to)

— Nonconvex, semi-algebraic or tame optimization
— Algorithms for Deep Learning

The candidate should have a PhD in mathematics or applied mathematics and a solid theoretical background in one the fields: optimization, geometry, variational analysis, algorithms, dynamical systems or other domain related to the project.

Only high skilled applications will be considered.

The proposed duration may range from 6 months to two-years depending on the case. Yearly net salary is approximately 30k$.

Supervisors:
-- J. Bolte jerome.bolte@tse-fr.eu
-- E. Pauwels edouard.pauwels@irit.fr

Please do not hesitate to send us a CV or to contact us if you need further information.
7) PostDoc Position: Orbital Collision Risk Assessment and Mitigation Strategies

De : Jean-Bernard Lasserre

Keywords: collision probability, orbit propagation, quadrature, optimal control, stochastic control, convex optimization, Lasserre hierarchy

Supervisors: D. Arzelier and M. Joldes

A PostDoc position is available in the ROC Team at LAAS-CNRS Laboratory in Toulouse, for 18 months, starting Fall 2020, financed by a joint Research and Technology (R&T) Contract between the CNES (French Space Agency), LAAS-CNRS Laboratory as well as Thales and Thales Alenia Space. The subject broadly concerns the orbital collision risk assessment and mitigation strategies. A more detailed description is provided below.

See attached file: postdoc.pdf

8) Annonces de séminaires

Une rubrique pour signaler quelques liens pour les séminaires ayant lieu ce mois-ci et organisés dans nos laboratoires.
N'hésitez pas à l'alimenter, préférentiellement via un lien vers la page du séminaire. Pour cela, envoyez un mail à l'adresse contact@lettremente.ovh.

- Séminaire Parisien d'Optimisation (IHP) https://sites.google.com/site/spoihp/
- Séminaire du programme PGMO https://www.fondation-hadamard.fr/fr/pgmo-seminars/seminars
- Groupe de Travail CalVa de Calcul de Variations (suivant les séances (lieu : voir site) : https://www.ljll.math.upmc.fr/fr/seminaires/article/gdt-calcul-des-variations
- Groupe de Travail Analyse Non-linéaire et EDP (ENS et UPMC) http://www.math.ens.fr/-Seminaires-?id_seminaire=14
- Séminaire Pluridisciplinaire d'Optimisation de Toulouse (lieu : voir site) http://projects.laas.fr/spot/
- Séminaire SAMOCOD (séminaire Avignon Montpellier Optimisation Contrôle et Dynamique) http://www.i3m.univ-montp2.fr/index.php?option=com_content&view=article&id=59&catid=19&sem=618
9) Autumn School on Bilevel Optimization (October 12-14, 2020)

De : Didier Aussel
Lien : https://alop.uni-trier.de/event/autumn-school-on-bilevel-optimization

Autumn School on Bilevel Optimization (October 12-14, 2020)

Bilevel optimization problems have attracted considerable attention over the last decades since their structure allows the modeling of a large number of real-life problems involving two types of decision makers, a leader and a follower, interacting sequentially in a hierarchical setting. This rather young and highly active field at the interfaces between mathematical optimization, computer science, and operations research has grown a lot in the last years. The studied problems are constrained optimization problems in which some constraints specify that a subset of variables constitutes an optimal solution of another (nested) optimization problem. Bilevel problems constitute a class of very difficult problems because they are inherently nonconvex and nondifferentiable. They are already NP-hard even if both levels are linear problems.

In the ALOP (https://alop.uni-trier.de) autumn school on bilevel optimization we will have introductory talks on the topics of linear as well as mixed-integer linear bilevel problems and on the relation between bilevel optimization, MPECs, and variational inequalities. The confirmed speakers are Martine Labbé (Université Libre de Bruxelles), Ivana Ljubic (ESSEC Business School of Paris), and Didier Aussel (Université de Perpignan).

Due to the current circumstances, the autumn school will take place online via Zoom meetings. Registration and participation is free of charge and we will provide certificates of participation. The registration deadline is September 28, 2020.
We also plan to have an elevator pitch session, where all participants can present their current research in short talks of 3 minutes.

All relevant information and updates can be found at https://alop.uni-trier.de/event/autumn-school-on-bilevel-optimization.

Contact:
Martin Schmidt
Trier University - Department of Mathematics
Universitätsring 15, 54296 Trier, Germany
E-Mail: martin.schmidt@uni-trier.de

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10) EUROPEAN CONFERENCE ON STOCHASTIC OPTIMIZATION and COMPUTATIONAL MANAGEMENT SCIENCE Conference, Ital

De  : Michel Thera
Lien : www.unive.it/ecsocms2021

First Announcement:

Joint EUROPEAN CONFERENCE ON STOCHASTIC OPTIMIZATION and COMPUTATIONAL MANAGEMENT SCIENCE Conference
7-9 July 2021, Venice, Italy

The organizers are delighted to invite you to ECSO – CMS 2021 that will be held in Venice, Italy, 7-9 July 2021, at the Department of Economics - Ca’ Foscari University of Venice, in the San Giobbe Economics Campus.

The event was originally planned for July 2020 but due to the COVID-19 situation the conference is rescheduled to the next year.

ECSO - CMS 2021 is jointly organized by the Department of Economics of Ca’ Foscari University of Venice, the CMS Journal and the EURO Working Group on Stochastic Optimization.

ECSO 2021 is the 3rd edition of a stream of conferences organized by the EURO Working Group on Stochastic Optimization (EWGSO). The previous editions were held in Paris (2014) and Rome (2017). The scope of the conference is to bring together researchers and professionals in Stochastic Optimization and its applications in different fields spacing from economics and finance to supply chain, logistics, etc.

CMS 2021 is the 17th edition of an annual meeting associated with the journal of Computational Management Science published by Springer. The aim of the conference is to provide a forum for theoreticians and practitioners from academia and industry to exchange knowledge, ideas and results in a broad range of topics relevant to the theory and practice of computational methods in management.
This joint event will provide a forum for fruitful discussions and interactions among researchers and professionals from industry and institutional sectors on decision making under uncertainty in a complex world. The conference will be within the scopes of both CMS and EWGSO and, in particular, it will focus on models, methods and computational tools in stochastic, robust and distributionally robust optimization and on computational aspects of management science with emphasis on risk management, valuation problems, measurement applications. Traditional fields of application, such as finance, energy, water management, logistics, supply chain management, and emerging ones, such as healthcare, climate risk and sustainable development, will be included.

CONFIRMED PLENARY SPEAKERS
DARINKA DENTCHEVA, Stevens Institute of Technology (USA)
DAVID MORTON, Northwestern University (USA)
GAH-YI BAN, London Business School (UK)
DANIEL KUHN, École polytechnique fédérale de Lausanne (CH)
GIORGIO CONSIGLI, Università di Bergamo (I)
WARREN POWELL, Princeton University (USA)

Venue: Department of Economics, Ca’ Foscari University of Venice
San Giobbe Campus – Cannaregio 873, 30121 Venice, Italy

Webpage: www.unive.it/ecsocms2021
Conference Secretariat: ecsocms2021@unive.it
Conference hashtag: #ecsocms2021

Call for papers and deadlines will be announced in Autumn

A Best Student Paper Prize will be awarded. Papers should be nominated via e-mail by the students’ supervisors (ecsocms2021@unive.it). The program will include a devoted session for presenting the best papers to compete for the prize, such that the jury could make the final choice. The paper does not have to be published. The papers should be principally authored by the student, but co-authors are permitted as long as their contributions are clarified. Only registered participants’ papers will be considered for the prize.

Jury for the Student Best Paper Prize: Stein-Erik Fleten (NTNU Norwegian University of Science and Technology), Milos Kopa (Charles University of Prague), Francesca Maggioni (University of Bergamo), Ruediger Schultz (University Duisburg-Essen).

We are looking forward to seeing you in Venice.

Best Regards,
Diana Barro, Stein-Erik Fleten and Martina Nardon

Organizing and Program Committee Chairs
11) EUROPT 2021: July 7-9, 2021

De : Marcel Mongeau

Dear Colleagues,

The 18th EUROPT Workshop on Advances in Continuous Optimization - EUROPT 2021- will take place in Toulouse, France, from July 7 to July 9, 2021: https://europt2021.recherche.enac.fr/ (available shortly).

The EUROPT Workshop on Advances in Continuous Optimization is the annual event of the EUROPT continuous optimization working group of EURO (The Association of European Operational Research Societies). This 18th edition was originally scheduled to be held on July 2020 in Toulouse, and, due to the difficult situation around the world in the context of the COVID-19 outbreak, has been postponed to 2021.

EUROPT 2021 will be hosted by ENAC - École Nationale de l'Aviation Civile, in Toulouse, the “pink city” in southern France.

Please add the EUROPT 2021 dates in your agenda!

Sonia Cafieri
EUROPT 2021 Program Committee Chair

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12) Journées SMAI-MODE 2020, 7 au 9 septembre 2020, en visio-conférence

De : Hasnaa Zidani
Lien : https://smai-mode2020.inria.fr/inscription/


A cause de la situation sanitaire en France, les journées MODE et le mini-cours seront entièrement en visio-conférence. Le prix DODU qui récompense la(es) meilleure(s) communication(s) orale(s) est maintenu.

L'inscription à ces événements est gratuite, mais il est nécessaire de s'inscrire pour avoir les liens de connexions. Le formulaire d'inscription à la conférence et au cours seront disponibles très prochainement en suivant les liens sur : https://smai-mode2020.inria.fr/inscription/

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13) Requesting proposals for organizing ICCOPT VII

De      : Michel Thera
Lien    : https://iccopt2019.berlin/

The ICCOPT Steering Committee of the Mathematical Optimization Society (MOS):

Mikhail Solodov - Chair (IMPA, Rio de Janeiro, solodov@impa.br)
Coralia Cartis (University of Oxford, Coralia.Cartis@maths.ox.ac.uk)
Maryam Fazel (University of Washington, mfazel@ee.washington.edu)
Michael Hintermueller (Weierstrass Institute, Berlin, michael.hintermueller@wias-berlin.de)
Angelia Nedich (Arizona State University, Angelia.Nedich@asu.edu)
Takashi Tsuchiya (National Graduate Institute for Policy Studies, Tokyo, tsuchiya@grips.ac.jp)

is requesting proposals for organizing ICCOPT VII, the Seventh International Conference on Continuous Optimization, which is scheduled to be held in or around August 2022. Being the flagship conference of MOS in the area of continuous optimization, ICCOPT is held every three years at a site to be selected according to the criteria below. For information about the four prior ones, visit the WEB-sites:

https://iccopt2019.berlin/
http://www.iccopt2016.tokyo/
http://eventos.fct.unl.pt/iccopt2013
http://www.iccopt2010.cmm.uchile.cl/

The proposal for organizing ICCOPT VII should include the candidate site and Organizing Committee. Selection criteria for the site are based on the following considerations:

1. Existence of continuous-optimization researchers in the proposed geographic area who are interested in and can assist in the organization of ICCOPT VII.

2. Attendance open to prospective participants from all nations.

3. Availability of an attractive facility with a sufficient number of meeting rooms, standard lecture equipment, etc., preferably on a university campus.

4. Availability of a sufficient supply of reasonably economical hotels and/or university dormitory rooms fairly near the meeting facility.

5. Committee is interested in the most compelling proposal regardless of the continent.
Some characteristics of previous ICCOPT conferences:

1. The more recent such conferences usually had around 500-700 participants.

2. Plenary, semiplenary lectures, invited and contributed sessions, poster session and poster competition.

3. The length of the recent ICCOPT conferences ranged between 4 and 6 days.

4. A 1 or 2-day long tutorial workshop for graduate students.

5. Young Researchers Prize in Continuous Optimization.

6. Program and Prize committees formed in consultation with the Steering Committee.

7. Social events, student's social, banquet.

8. Reasonably low registration fee.

9. No financial or administrative support from MOS.

10. No proceedings of papers, no competitive selection of talks, but only one presentation per paid participant.

Further information can be obtained from any member of the Steering Committee.

Submission deadline: 12:00 GMT, August 31, 2020 to the Chair of the ICCOPT Steering Committee: Mikhail Solodov (solodov@impa.br).

Hosts of the candidate sites are encouraged to send an email as soon as possible to the Committee Chair to indicate interest to submit a proposal.

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14) Call for submissions: Mathematics of Control, Signals, and Systems

De      : Michel Thera
Lien    : https://www.springer.com/journal/498/submission-guidelines#Instructions%20for%20Authors

The Journal "Mathematics of Control, Signals, and Systems" has a long tradition in publishing papers at the interface of machine learning, artificial intelligence and control systems and signals, as evidenced by the seminal paper of Cybenko on approximation by superposition of sigmoidal functions, which was published in MCSS in 1989.

It is by now well understood that there exist many fruitful links between optimal control, estimation and learning. For example, in supervised learning training, a neural network for classification tasks can be phrased as an optimal control problem.
Likewise, there exist promising approaches to approximate the argmin operator of an optimization or optimal control problem via learning techniques.

Hence, the special issue of MCSS intends to gather several high-quality contributions investigating theoretical and numerical interconnections between optimal control, estimation and learning, whereby learning is understood in a broad sense, including supervised learning, reinforcement learning, etc.

Submissions can be made beginning August 1st 2020 until January 31st 2021, and will undergo a rigorous peer-review process.

The issue is expected to be published in 2021, in the meantime corrected proofs will be available as Online First.

For further author guidelines, please refer to:
https://www.springer.com/journal/498/submission-guidelines#Instructions%20for%20Authors

If any questions, please contact one of the associate editors:
• Timm Faulwasser timm.faulwasser@tu-dortmund.de
• Dante Kalise dante.kalise@nottingham.ac.uk
• Emmanuel Trélat emmanuel.trelat@sorbonne-universite.fr

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15) Recueils de d’articles à disposition

De : Jean-Baptiste Hiriart-Urruty

Le confinement a conduit à du rangement… J’ai à disposition de celle ou celui qui serait intéressé-e 2 dossiers (recueils de d’articles) sur :

* L’histoire de la convexité (Fenchel), les débuts de ce qu’on appelle Math Programming (Farkas, KKT, etc.). Environ 15 documents, dont certains devenus introuvables.

* Les débuts de la commande optimale, l’histoire du PMP (avec les controverses qui vont avec, par Gamkrelidze, Boltyanskii). 7 documents, dont un inédit.

Contact : jbhu@math.univ-toulouse.fr

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