RESEARCH CENTER

FIELD
Applied Mathematics, Computation and Simulation

Activity Report 2018

Section Highlights of the Team

Edition: 2019-03-07

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ACUMES Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

Tunisian Women Mathematicians' Association (TWMA) awarded B. Yahyaoui (Acumes PhD) with the Best 2017 PhD Thesis in Applied Mathematics (October 2018).

CAGIRE Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

ANR MONACO_2025

The ANR MONACO_2025 project started in March 2018. The consortium of this project, coordinated by [RM], consists in an academic partner, the institute PPrime of Poitiers, and two industrial partners, PSA and EDF. It is focused on the the development of a CFD methodology for transient, buoyancy-affected turbulent flows, that are crucial for the two industrial partners. Four PhD students, Saad Jameel (CIFRE PSA grants), Puneeth Reddy (ANR grant), Gaëtan Mangeon (CIFRE EDF) and Vladimir Duffal (CIFRE EDF) are involved in this project, which plays a major role in the active collaboration among these students.

A new industrial partner

A collaboration started in 2018 with a new industrial partner, Dassault Aviation, via the CIFRE PhD of Gustave Sporschill supervised by Rémi Manceau.

A new regional initiative

Cagire is part of the 3-year program HPC scalable ecosystem funded by Région Nouvelle-Aquitaine in the framework of its 2018 call.

HTLES in the commercial code CONVERGE

In the framework of the IFPEN PhD thesis of Al Hassan Afailal (supervision by Rémi Manceau), the hybrid RANS/LES method developed in the project-team CAGIRE has been implemented in the commercial software CONVERGE (https://convergecfd.com).

CARDAMOM Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- On Tuesday, 19 June, the Project AMDECC (Adaptation de Maillage Dynamique et massivement parallèle pour la simulation aux grandes Echelles des Chambres de Combustion aéronautiques), launched 5 years ago within a partnership with Safran Tech and the CORIA (UMR6614 CNRS Université de Rouen and INSA Rouen), received the Award for Best Collaborative Project, one of the Digital Simulation Trophies awarded by Teratec and Usine Digitale. The aim of this project is to design helicopter engines that afford better, and cleaner, performance. To achieve this, the team uses large-scale simulations of engine combustion chambers with a view to improving quality-to-cost ratio. Optimising the simulations is key to the project's success since this approach requires intensive use of high-performance computing. Adaptation is performed with the MMG platform developed by C. Dobrzynski. For more information see `https://www.inria.fr/en/centre/bordeaux/news/amdecc-project-wins-award-at-teratec-forum` and `https://www.mmgtools.org`.
- One of the articles of M. Colin, 'Standing waves for the nonlinear Schrödinger equation coupled with the Maxwell equation', published in Nonlinearity, has been selected for the journal's 2017 Highlights Collection<http://iopscience.iop.org/journal/0951-7715/page/Highlights-of-2017>.

DEFI Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Fellowship for the participation to the Center for Turbulence Research Summer Program in Stanford University, June-July 2018 (PM Congedo, G. Gori).

ECUADOR Project-Team (section vide)

ELAN Team (section vide)

GAMMA3 Project-Team

3. Highlights of the Year

3.1. Highlights of the Year

3.1.1. Awards

- Adrien Loseille. Deuxième Prix FIEEC de la Recherche Appliquée.

MATHERIALS Project-Team

4. Highlights of the Year

4.1. Highlights of the Year

4.1.1. Awards

Claude Le Bris was selected to deliver the Coxeter lectures at the Fields Institute in Toronto and the Aziz lectures at the University of Maryland.

Florent Hédin received the "Best student/postdoc oral presentation" award at the 7^{th} Workshop on Parallel-in-Time methods, Roscoff, France, May.

MEMPHIS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Turbulent flow simulations using Octrees

We have initially developed and tested a 3D first-order Octree code for unsteady incompressible Navier-Stokes equations for full windmill simulations with an LES model and wall laws. We have validated this code on Occigen for complex flows at increasing Reynolds numbers. This step implied identifying stable and feasible schemes compatible with the parallel linear Octree structure. The validation has been conducted with respect to the results of a fully Cartesian code (NaSCAR) that we run on Turing (with significantly more degrees of freedom) and with respect to experimental results.

Subsequently, we have developed a second-order Octree scheme that has been validated on Occigen for a sphere at a moderate Reynolds number ($\mathrm{Re} = 500$), see Table 1 . Then, for a cylinder at ($\mathrm{Re} = 140000$) (Figures 5 (a) and 5 (b)), close to real applications, we have preliminary validation results for the second-order scheme with respect to experimental drag coefficient (Table 2). Additional resources will be asked on Occigen to complete the study.

Table 1. Flow past a sphere at Re =500. Results in the literature are spread between C D =0.48 and C D =0.52.

Mesh	$\Delta x_{\min}$	number of cells	C_{D} (1^{st}-order scheme)	C_{D} (2^{nd}-order scheme)
1	0.094	$0.72 \cdot 10^5$	N.A.	0.526
2	0.047	$4.9 \cdot 10^5$	0.595	0.522
3	0.023	$4.7 \cdot 10^6$	0.546	0.492
4	0.012	$37.6 \cdot 10^6$	0.555	0.496

Table 2. Flow past a sphere at Re =14000.

Case	C_{D}
Octree, 1^{st}-order scheme	1.007
Octree, 2^{nd}-order scheme	1.157
Cartesian	1.188
Experimental estimate [31]	1.237

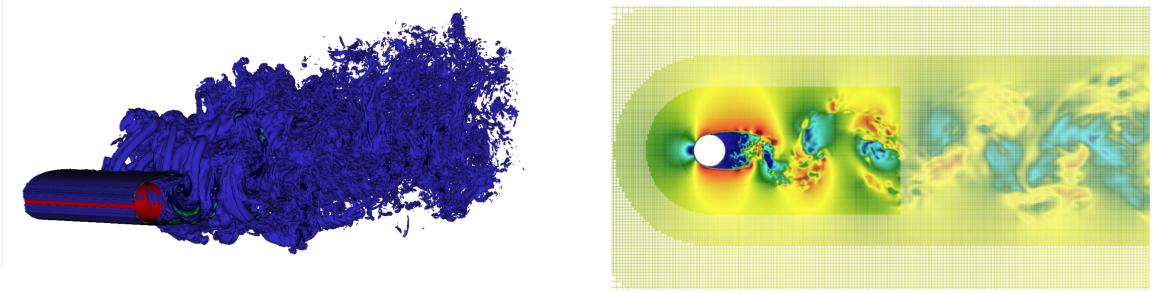

Figure 5. flow past a cylinder at $\mathrm{Re} = 140000$*. Left: vorticity contour lines. Right: streamwise velocity section and grid for the second-order Octree scheme.*

MEPHYSTO-POST Team (section vide)

MINGUS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

Arnaud Debussche has been awarded the senior IUF.

5.1.2. Contracts

- New associated team ANTIpODE with the University of Wisconsin.
- New contract with the startup RAVEL.
- New contract with the startup CAILABS.

MOKAPLAN Project-Team

4. Highlights of the Year

4.1. Highlights of the Year

4.1.1. Awards

G. Carlier was a John von Neumann invited Professor at TUM (Munich) in 2018.

NACHOS Project-Team (section vide)

NANO-D Project-Team

4. Highlights of the Year

4.1. Highlights of the Year

- This year we have very successfully participated in the blind assessment of protein structure prediction methods exercise CASP13. We have evaluated the performance of several knowledge-based potentials for protein model quality and protein docking, small-angle scattering approaches Pepsi-SAXS and Pepsi-SANS, cross-linking developments, methods based on normal mode analysis and more. Our team was ranked 1st in three data-assisted CASP13 sub-challenges (SAXS, SANS, and crosslinks), and got into the top-10 predictors in the main category of the prediction of regular targets. We were also interviewed on this subject by the Le Figaro newspaper [88].
- The OneAngström startup was created this year around the development of the SAMSON software platform. Four team members have joined the startup : Stephane Redon, Jocelyn Gate, Dmitriy Marin, and Yassine Naimi.
- Our Ananas analytical symmetry detection method [70] was used in the official assessment of protein assemblies in CASP13 and was also transferred to the PDBe European resource for the collection, organisation and dissemination of data on biological macromolecular structures [30].

4.1.1. Awards

- Our paper "Analytical symmetry detection in protein assemblies. II. Dihedral and cubic symmetries" covered the September 2018 issue of the Journal of Structural Biology [20].
- Our paper "A novel fast Fourier transform accelerated off-grid exhaustive search method for cryo-electron microscopy fitting" covered the the August 2017 issue of Journal of Applied Crystallography [58].
- Our paper "NOLB: Nonlinear Rigid Block Normal Mode Analysis Method" covered May 2017 issue of Journal of Chemical Theory and Computation [57].
- Our predictions were ranked 1st in the SAXS-assisted category of the CASP13 protein structure prediction challenge (cumulative SAXS-assisted z-scores).
- Our predictions were ranked 1st in the SANS-assisted category of the CASP13 protein structure prediction challenge (cumulative SANS-assisted z-scores).
- Our predictions were ranked 1st in the X-link-assisted category of the CASP13 protein structure prediction challenge (cumulative X-link-assisted z-scores).

RAPSODI Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

In 2018, the RAPSODI project-team was strongly involved in the organization of scientific events. In particular, in the framework of the LabEx CEMPI thematic semester on Numerical Analysis and PDEs, the following events were organized by RAPSODI members:

- the Mathematics-Enterprises Study Week, co-organized at LILLIAD Learning Center by E. Creusé from January 29 to February 2;
- the third edition of the ABPDE conference (on Asymptotic Behavior of systems of PDEs arising in physics and biology), co-organized at LILLIAD Learning Center by C. Cancès, C. Chainais-Hillairet, I. Lacroix-Violet, and T. Rey on August 28-31;
- the second edition of the One-day conference on Calculus of Variations, co-organized at Laboratoire Paul Painlevé by I. Lacroix-Violet and B. Merlet on October 12;
- the fifth edition of the Lille days on Numerical Analysis (dedicated to domain decomposition and its applications to PDEs), co-organized at Laboratoire Paul Painlevé by C. Calgaro Zotto and E. Creusé on November 13-14.

A research school on Mathematics for Nuclear Energy was also co-organized at the Roscoff Marine Station by C. Cancès on July 2-6, in partnership with the GdR MaNu. Let us as well mention the organization in the CANUM (national NUMerical Analysis Congress) at Cap d'Agde from May 28 to June 1 of three mini-symposia by members of the team: one by C. Cancès on cross-diffusion systems, one by S. Lemaire on polytopal discretization methods, and one co-organized by T. Rey on kinetic models. Team contributions finally include the co-organization by E. Creusé of the Maths Jobs Forum that was held in Paris on December 13, and the co-organization by A. Zurek of the Young Mathematicians Regional Tournament that was held in Laboratoire Paul Painlevé on April 14-15.

CAGE Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

Emmanuel Trélat has been invited speaker at the International Congress of Mathematicians (ICM2018) in Rio, Brazil, in the session “Control theory and optimization".

5.1.1. Awards

- The poster “Adaptive Stimulation Strategy for Selective Brain Oscillations Disruption in a Neuronal Population Model with Delays" by **Jakub Orlowski**, Antoine Chaillet, **Mario Sigalotti**, and Alain Destexhe, has received the CPHS 2018 Best Poster Prize at the 2nd IFAC Conference on Cyber-Physical & Human Systems.

COMMANDS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

Variational analysis for options with stochastic volatility and multiple factors

Publication of the paper [3] in the SIAM J. finance. This paper clarifies the issue of well-posedness of some PDEs arising in finance.

A stochastic data-based traffic model applied to vehicles energy consumption estimation

Publication [10] of a new method for the analysis of road traffic, in relation with energy consumption.

DISCO Project-Team (section vide)

FACTAS Team (section vide)

I4S Project-Team

4. Highlights of the Year

4.1. Highlights of the Year

4.1.1. Awards

BEST PAPERS AWARDS :
[30]
X. LORANG, S. KERBAL, L. LEMARCHAND, V. LE CAM, J.-J. MOGORO.*New detection criteria and shunting monitoring in railway track circuit receivers*, in "IWSHM-RS 2018 - 2nd International Workshop on Structural Health Monitoring for Railway Systems", Qingdao, China, October 2018, p. 1-10, https://hal.inria.fr/hal-01898678

MCTAO Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

Let us mention two events

- Lamberto Dell'Elce was hired as a permanent researcher in 2018. This is not a scientific achievement in itself, but it is an important point in the life of a research team.
- Alessio Figalli recieved a Fields Medal at ICM 2018 in Rio. He is a close collaborator of Ludovic Rifford, member of the team.

NECS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- The team organized the international ERC Scale-FreeBack workshop on "Analysis and Control of Large-Scale Complex Networks", Grenoble, September 10-11th, 2018 (http://scale-freeback.eu/workshop-on-analysis-and-control-of-large-scale-complex-networks-10-11-sept-2018-grenoble/)
- P. Frasca is Senior Member of the IEEE

NON-A POST Team

4. Highlights of the Year

4.1. Highlights of the Year

4.1.1. Awards

- Gabriele Perozzi (a PhD student of the team) get the creativity prize of FR CNRS TTM (La Fédération de Recherche Transports Terrestres & Mobilité);
- Hafiz Ahmed (a former PhD student of the team) is a winner of Annual European PhD Award on Control for Complex and Heterogeneous Systems.

QUANTIC Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Pierre Rouchon was the main organizer of the spring thematic quarter at Institut Henri Poincaré entitled "Measurement and control of quantum systems: theory and experiments" (16 April – 13 July 2018). This thematic quarter included courses, lectures and conferences. In particular, a research school of one week at CIRM, two 3-day workshops in May and June and the 2018 issue of PRACQSYS conference in July were organized throughout the quarter. This thematic quarter involved several hundred of participants. See IHP web page (http://www.ihp.fr/en/CEB/T2-2018), CIRM web page (https://conferences.cirm-math.fr/1732.html) and the specific quarter web site (https://sites.google.com/view/mcqs2018/home).
- QUANTIC has received a sub-award from Yale university for pursuing the collaborations of Mazyar Mirrahimi and his students/postdocs. In the framework of a new ARO (Army Research Office) grant received by our collaborators at Yale, QUANTIC receives 500k dollars over 4 years to fund the hiring of PhD students/ postdocs working on the collaborative subjects with Yale and also to cover the travels between Inria and Yale.
- Alain Sarlette has received a JCJC ANR grant entitled HAMROQS "High-accuracy model reduction for open quantum systems". This grant of 212k euros over 4 years will fund the activities of Alain Sarlette and his students/postdocs on systematic methods for quantum systems model reduction.
- PhD students of Alain Sarlette, Arash Farnam and Simon Apers, defended their PhD at his previous institution (Ghent university, Belgium).
- Mazyar Mirrahimi was an invited speaker at the American Physical Society March Meeting in Los Angeles.
- Mazyar Mirrahimi was a semi-plenary speaker at MTNS in Hong Kong (Mathematical Theory of Networks and Systems).

SPHINX Project-Team

4. Highlights of the Year

4.1. Highlights of the Year

4.1.1. Recruitments

Ludovick Gagnon has been recruited as a junior researcher (Chargé de recherche) in the team (from September 2018).

TRIPOP Team (section vide)

TROPICAL Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- The paper [89] has been included in a list of "10 notable papers published over the last 50 years by the journal Linear Algebra and its applications", at the occasion of the golden anniversary of the journal.
- The article [17] answers an old question in the theory of interior point methods: it provides a counter example showing that log-barrier interior point methods are not strongly polynomial.

BONUS Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- Patent with Beckman & Coulter on the optimization of large medical laboratories (Prof. E-G. Talbi, S. Faramarzi-oghani, M. Bué).

GEOSTAT Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Technology transfer and socio-economic impact: InnovationLab i2S-GEOSTAT. Three year contract with I2S company on the transfert of award winning H. Badri PhD results (AFRIF PhD price in 2016). The contract is being transformed in 2018 in the form of an Inria Innovation Lab. The Innovation Lab is focused on non convex optimization methods in image processing and digital acquisition devices. People involved in GEOSTAT: H. Yahia, N. Brodu, K.Daoudi, M. Martin, A. Zebadua. Budget: 900 000 € on 3 years. The InnovationLab is intended at transferring non-convex optimization methods to solve efficiently the fundamental steps of an imaging acquisition chain built by i2S company. In particular, the following thematics receive new algorithmic solutions through proximal operators and non-convex optimization:
  - Image smoothing
  - Image denoising
  - Efficient block-matching implementation
  - Denoising through learning
  - Low rank transfert
  - Debayerisation
  - Image stitching
  - Deconvolution
  - 3D reconstruction from corrupted gradients
  - Super-resolution
  - Image enhancement

  This InnovationLab is operated by GEOSTAT researchers, 1 PhD, 2 post-docs and 1 engineer. C++ libraries are developed and transferred into the algorithmic chain at i2S.
- Research results done by GEOSTAT and LEGOS on greenhouse gases partial pressures at the atmosphere/ocean interface layers put forward on ESA site. Read : "Increasing the effective resolution of not well-resolved Essential Ocean Variables".
- IFCAM (Indo-French Center for Applied Mathematics) project accepted: "Generalization for land cover classification" by Dharmendra Singh and Nicolas Brodu.

INOCS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- Martim Joyce-Moniz, former INOCS PhD student supervised by Bernard Fortz, won the Best Dissertation Award of the INFORMS Section on Telecommunications and Network Analytics.
- Bernard Fortz, Enrico Gorgone and Dimitri Papadimitriou received the 2017 Glover-Klingman prize for the best paper published in *Networks* (an international journal) [6].
- Wenjuan Gu, together with co-authors Diego Cattaruzza, Maxime Ogier and Frédéric Semet, has been classified finalist for the best article GT2L (Groupe de Travail Transport et Logistique) award with the paper titled *Adaptive large neighborhood search for multicommodity VRP* [49]. The work has been presented during the conference Roadef 2018 held in Lorient, France.

5.1.2. Publications & dissemination

- Luce Brotcorne was the EURO Plenary Speaker at the XIX Latin-Iberoamerican Conference on Operations Research (CLAIO 2018) in Lima, Peru, September 2018 [28].
- Martine Labbé was plenary speaker at the «Journées de l'optimisation» in Montreal, Canada, May 2018 [31].

MISTIS Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

Scholarships:

- Alexandre Constantin supervised by S. Girard (MISTIS) and M. Fauvel (INRA Toulouse) was granted a PhD scholarship on "Analyse de séries temporelles massives d'images satellitaires: Applications à la cartographie des écosystèmes" from CNES and the IDEX Université Grenoble Alpes – Initiatives de Recherche Stratégiques (IRS).
- Meryem Bousebata supervised by S. Girard (MISTIS) and G. Enjolras (CERAG Grenoble) was granted a PhD scholarship on "Bayesian estimation of extreme risk measures: Implication for the insurance of natural disasters" from the Idex project named Risk@UGA.

Projects:

- In the context of another Idex project named Data@UGA, a 2-year multi-disciplinary project entitled "Tracking and analysis of large population of dynamic single molecules" was granted in November 2018 to MISTIS in collaboration with the GIN, coordinated by F. Forbes (MISTIS) and V. Stoppin-Mellet (GIN).

Editorial and publishing activities:

- A new book entitled *Handbook of mixture analysis*, edited at CRC Press by Gilles Celeux (Inria), Sylvia Früwirth-Schnatter (Wien University), and Christian P. Robert (Université Paris-Dauphine) is now available (December 2018). Florence Forbes and Julyan Arbel have written 2 of the chapters in the book [49], [51].
- Marianne Clausel and Jean-Baptiste Durand co-published a chapter [48] on generative models in data science in the book *Data Science. Cours et exercices*, edited by Eyrolles (Paris).
- Stéphane Girard and Julyan Arbel have co-edited a book of proceedings following the Summer School Stat4Astro they organized in Autrans in 2017 [64].

New appointments:

- Stéphane Girard has been hired as a research collaborator by the CMAP (Centre de Mathématiques Appliquées de l'école Polytechnique) in the context of the Chair Stress Test, RISK Management and Financial Steering, led by the French Ecole polytechnique and its Foundation and sponsored by BNP Paribas.

MODAL Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Hemant Tyagi has been recruited as CR in the team.
- Three new ANR funded (one began in 2018, two will start in 2019).
- One H2020 European project funded (started in November 2018).
- One-year EIT European project called SysBooster with ApSys and Nokia.
- Creation of a startup using MODAL's technology (MixtComp software).

RANDOPT Team

5. Highlights of the Year

5.1. Highlights of the Year

A. Auger appointed general chair of the ACM GECCO 2019 conference (GECCO being the largest most selective conference in EC)

REALOPT Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

François Vanderbeck was chair of the organizing committee of ISMP'2018. ISMP is the triennial international congress of mathematical optimization, where scientists from all over the world as well as industrial practitioners of mathematical optimization meet in order to present their most recent developments and results and to discuss new challenges from theory and practice. It is the symposium of the Mathematical Optimization Society (MOS). More than 1900 scientists attended the conference this year in Bordeaux.

Olivier Beaumont was the program chair of the IEEE-ACM HiPC conference held in Bangalore in December 2018.

The team decided to develop an open-source platform, called coluna, to allow the scientific committee to use our state-of-the-art algorithms for extended formulations.

A first spinoff company is being created by RealOpt members.

SELECT Project-Team (section vide)

SEQUEL Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

- Daniele Calandriello is awarded with the AFIA price for his PhD defended in December 2017. As a side note, this is the 5th time a PhD student of SEQUEL receives this award since our first PhD defense in 2010.
- We organized the 14th European Workshop on Reinforcement Learning in Lille. This event gathered 200 researchers; there were a dozen invited presentations by world research leaders, including Prof. Richard Sutton (U. Alberta), the founder of modern RL, Prof. Tze Leung Lai (Stanford U.), one of the key reference in bandit research, and also Nicolò Cesa-Bianchi (U. Milan), Peter Auer (U. of Leoben), Rémi Munos (Deepmind Paris), and Joelle Pineau (Mc Gill and FAIR).

5.1.1. Awards

- Former 2017 intern M. Asadi got a It was "Best Poster Award" at Transylvania Machine Learning Summer School (TMLSS), July 2018 for the work she did while in SEQUEL
- É. Kaufmann is among the top 10 reviewers at ICML 2018 (out of 1800 reviewers)
- Ph. Preux was among the 24 "level-2 Distinguished Senior Program Committee Members" for IJCAI 2018 (out of 498 SPC members, 115 were distinguished, 23 at level 2, the highest level)
- M. Valko is among the top 10 reviewers at ICML 2018 (out of 1800 reviewers)

SIERRA Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

Francis Bach, Lagrange Prize in Continuous Optimization, Society for Industrial and Applied Mathematics 2018

Francis Bach, Best Paper Award, NeurIPS 2018.

Francis Bach included in the report *Highly cited researchers, year 2018*, Clarivate Analytics, 2018

Nicolas Flammarion, PhD thesis award in the *Programme Gaspard Monge*, Fondation Mathématique Jacques Hadamard, 2018.

Adrien Taylor, Tucker Prize (finalist) 2018 (dissertation prize by the Math- ematical Optimization Society for 2015-2017).

Adrien Taylor, IBM/FNRS innovation award 2018 (dissertation prize for original contributions to informatics).

Adrien Taylor, Icteam thesis award 2018 (dissertation award by the icteam institute of UCLouvain, Belgium).

Adrien Taylor, Best paper award 2018 from the journal Optimization Letters for the paper *On the worst-case complexity of the gradient method with exact line search for smooth strongly convex functions*, Etienne De Klerk, François Glineur, Adrien Taylor. journal=.

TAU Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

- *GECCO 2018 10-years impact award*, awarded to the paper published in GECCO 2008 that had the greatest impact, seen from 10 years later, for the paper

  Adaptive operator selection with dynamic multi-armed bandits, by Luis DaCosta, Alvaro Fialho, Marc Schoenauer, and Michèle Sebag, in Maarten Keijzer (Ed), Proc. ACM-GECCO, pp 913-920, 2008.

- Nacim Belkhir, Winner ACM-GECCO 2018 **BBComp single-objective** and **expensive single-objective** tracks. Nacim completed his PhD in TAU in 2017 [71], co-supervised by Marc Schoenauer, Johann Dréo and Pierre Savéant (Thalès TRT).

5.1.2. Visibility

- Marc Schoenauer, member of the core team responsible for the *Villani mission* regarding the French strategy on Artifical Intelligence. The mission started Sept. 2017 and the final report was delivered on March 29. 2018.
- Michèle Sebag, elected member of French Académie des Technologies, Apr. 2018.
- Michèle Sebag, chevalière de la Légion d'Honneur, Dec. 2018.

CQFD Project-Team (section vide)

MATHRISK Project-Team

5. Highlights of the Year

5.1. Highlights of the Year

The project team Mathrisk has been evaluated in March. The report was very positive.

SIMSMART Team

5. Highlights of the Year

5.1. Highlights of the Year

5.1.1. Awards

The contribution [10] received the “best poster award” of the conference Curves and Surfaces 2018.

TOSCA Project-Team (section vide)