

Olivier Tissot

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Birth date: 1992/03/26

Education

2015– **Ph.D. in Applied Mathematics**, *University Paris VI*.

Subject: *Reducing communication for sparse solvers of linear equations on large scale computers*, Advisor: Laura Grigori.

2012–2014 **M.Sc. in Numerical Analysis and Partial Differential Equations**, *University Paris VI, with High Honors*.

2009–2012 **B.Sc. in Applied Mathematics and Informatics**, *University Paris V, with Honors*.

Research

Publications

- [3] **Solving sequences of linear systems by recycling deflation subspaces — application to CMB data analysis**, *Laura Grigori, Radek Stompor, Jan Papež, OT*, 2018, *in preparation*.
- [2] **Scalable linear solvers based on Enlarged Krylov subspaces with dynamic reduction of search directions**, *Laura Grigori, OT*, RR-9190, Inria Paris. 2018, *submitted*.
- [1] **Enlarged Conjugate Gradient with adaptive reduction of search directions**, *Laura Grigori, OT*, RR-9023, Inria Paris. 2017, *in review*.

Technical reports

- [6] **NLAFET Deliverable 4.5: Integration**, *Simplice Donfack, Laura Grigori, OT*, 2018.
- [5] **NLAFET Deliverable 5.2: Software integration**, *Maksims Abalenkovs, Simplice Donfack, Jack Dongarra, Iain Duff, Laura Grigori, Stojce Nakov, Jan Papež, OT, Mawussi Zounon*, 2018.
- [4] **NLAFET Deliverable 4.4: Performance evaluation**, *Simplice Donfack, Laura Grigori, OT*, 2018.
- [3] **NLAFET Deliverable 4.3: Prototype software**, *Simplice Donfack, Laura Grigori, OT*, 2017.
- [2] **NLAFET Deliverable 4.2: Analysis and algorithm design**, *Simplice Donfack, Laura Grigori, OT*, 2017.
- [1] **BocopHJB 1.0.1 – User Guide**, *Frédéric Bonnans, Daphné Giorgi, Benjamin Heymann, Pierre Martinon, OT*, RT-0467, INRIA. 2015, pp.24.

Software

2016– **preAlps**, *contributor*, C and MPI library containing several preconditioners and iterative solvers.

Implementation of 4 variants of the Enlarged Conjugate Gradient method.

- Matrix and preconditioner free (Reverse Communication Interface).
- Very light: the only dependencies are BLAS and LAPACK.
- Documentation and examples.
- Performances assessed on different types of matrices: elasticity, structural problem.

2014–2015 **Bocop**, *developer and maintainer*, C++ optimal control toolbox.

Maintenance of the software as well as development of BocopHJB that uses a HJB approach.

- User friendly: automatic installer and GUI.
- Open-source package, highly modular architecture.
- Built-in parameter estimation module.
- Relies on well-known libraries (Ipopt, MUMPS).

Talks

- 2018/03 **Enlarged Conjugate Gradient method for reducing communication**, *SIAM PP18, MS 55*, Tokyo, Japan.
- 2018/03 **Enlarged GMRES for reducing communication**, *SIAM PP18, MS 28*, Tokyo, Japan.
I filled in for Hussam Al Daas.
- 2017/06 **Enlarged Krylov subspace methods for reducing communication**, *PASC 17, MS 45*, Lugano, Switzerland.
- 2017/03 **Enlarged GMRES**, *SIAM CSE17, MS254*, Atlanta, USA.
I filled in for Hussam Al Daas.
- 2017/02 **Adaptive enlarged Krylov conjugate gradient**, *DD24, MS01*, Longyearbyen, Norway.
- 2016/12 **Iterative methods for solving linear systems on supercomputers**, *Junior Seminar*, Inria Paris.

Research stays

- 2016/07 **CEMRACS**, *CIRM*, Marseille, 6 week summer school.
to 2016/08 Participation to the mini-project *Enlak* with Hussam Al Daas.
- 2016/01 **University of California**, *Berkeley*, BeBOP group.
to 2016/04 3 month visit in Jim Demmel's group.

Reviewer

- Journal *Parallel Computing*
Conference *PASC*

References

- Iain Duff**, *Senior Fellow*, Rutherford Appleton Laboratory, mail: iain.duff@stfc.ac.uk.
- Laura Grigori**, *Research director*, Inria Paris, mail: laura.grigori@inria.fr.
- Frédéric Nataf**, *Research director*, CNRS, Laboratoire Jacques-Louis Lions, mail: nataf@ljl11.math.upmc.fr.

Teaching

- 2018/02 **1M004**, *Matrix Calculus*, Introduction to Matrix Calculus for 1st year student in Physics, 18 hours.
to 2018/05 Teaching Assistant
- 2017/09 **1M001**, *Calculus*, Introduction to Analysis for 1st year students in Mathematics, 38.5 hours.
to 2017/12 Teaching Assistant

Work Experience

- 2014/12 **Research Engineer**, INRIA, Palaiseau, Supervisors: Frédéric Bonnans, Pierre Martinon.
to 2015/10 Main developer of Bocop: an optimal control toolbox.
 - ✓ C++ development of Bocop "HJB" version.
 - ✓ User support.
- 2014/03 **Internship**, EDF R&D, Chatou, Supervisors: Ophélie Angelini, Erwan Le Coupanec.
to 2014/10 Study of SUSHI scheme in the CFD software *Code_Saturne*.
 - ✓ Integration of a C prototype in *Code_Saturne*.
 - ✓ Application to a real industrial case.
- 2013/06 **Internship**, MOKILI, Gentilly, Supervisor: Olivier Oldrini.
to 2013/09 Software development of a tool dedicated to mobility evaluation and optimization.
 - ✓ Benchmark of existing software.
 - ✓ Design of a web interface.
 - ✓ Bibliographic search on mixed optimization algorithms.

Informatics

Skills

Languages C, C++, PYTHON, FORTRAN

Development Git, Mercurial, SVN, CMake

Student projects

- M.Sc. → Finite elements \mathbb{P}^1 wave equation solver (C++).
→ Finite elements $\mathbb{P}^1/\mathbb{P}^2$ Navier-Stokes equations solver (C++).
→ Parallel Low-Rank Matrix Decomposition (C).

Available at: <http://otissot.github.io/oliviertissot-projects/>

- B.Sc. Building and programming a ball collector robot (<http://www.ens.math-info.univ-paris5.fr/projets-informatiques/doku.php?id=projet:licence2:2010-2011:ga2:accueil>)

Languages

French **Mother tongue**

English **Fluent**

Interests

- Athletism (middle distance)

- Origami