DR. OLIVIER TISSOT

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github.com/otissot

WORK EXPERIENCE

Post-doctoral research associate
Johannes Gutenberg University

Feb. 2019 – present Mainz, Germany

Adaptive methods for high–dimensional eigenvalue problems.
Supervisor: Markus Bachmayr.

Ph.D. candidate
Inria Paris

Oct. 2015 – Jan. 2019 Paris, France

Thesis title: *Iterative methods for solving linear systems on massively parallel architectures*.
Advisor: Laura Grigori.

Research Engineer
Inria Saclay

Dec. 2014 – Sep. 2015 Palaiseau, France

Main developer of Bocop: an optimal control toolbox (C++).

Intern
Électricité de France R&D

Mar. 2014 – Oct. 2014 Chatou, France

Study of the SUSHI numerical scheme in the CFD software *Code_Saturne* (Fortran and C).

Intern
Mokili (startup working on air quality)

June 2013 – Aug. 2013 Gentilly, France

Proof of concept of a tool dedicated to the evaluation and optimization of the mobility which takes into account the carbon footprint (C++).

SOFTWARE DEVELOPMENT

preAlps (C and MPI)
Main contributor

2016 – present

- Parallel implementation of several variants of the Enlarged CG method.
- Very light: the only dependencies are BLAS and LAPACK.
- Scalability assessed up to 16,384 cores on elasticity matrices.
- Documentation and examples.

Bocop (C++)
Developer and maintainer

2014 – 2015

- Maintenance of the software.
- Development of a new version that uses a HJB approach.

RESEARCH INTERESTS

Numerical Linear Algebra · HPC · High-dimensional problems · Krylov methods · Tensor Computations

INFORMATICS SKILLS

Languages

C ●●●●○
C++ ●●●○○
Julia ●●○○○
Matlab ●●○○○
python ●●○○○
fortran ●●○○○

Development

Git · CMake · Doxygen · MPI · BLAS · LAPACK · MKL · PETSc · Pardiso · SuiteSparse

EDUCATION

Ph.D. in Applied Mathematics
Sorbonne University

Oct. 2015 – Jan. 2019

M.Sc. in Applied Mathematics
University Paris 6

Sep. 2012 – June 2014

whith High Honors

B.Sc. in Applied Mathematics and Computer Science
University Paris 5

Sep. 2009 – June 2012

with Honors

LANGUAGES

French ●●●●●
English ●●●●○

INTERESTS

Athletics (middle distance) · Origami

RESEARCH

Publications

1. **Scalable linear solvers based on Enlarged Krylov subspaces with dynamic reduction of search directions**, *Laura Grigori*, *OT*, RR-9190, Inria Paris (2018), *in review*.
2. **Enlarged Conjugate Gradient with adaptive reduction of search directions**, *Laura Grigori*, *OT*, RR-9023 (old version), Inria Paris (2017), *in review*.

Technical reports

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

Talks

- *Enlarged Conjugate Gradients for reducing communication*, Seminar of the Scalable Algorithms group at Sandia National Laboratories, Albuquerque, USA (June 2018).
- *Enlarged Conjugate Gradient method for reducing communication*, SIAM PP18, MS 55, Tokyo, Japan (March 2018).
- *Enlarged GMRES for reducing communication*, SIAM PP18, MS 28, Tokyo, Japan (March 2018). *I filled in for Hussam Al Daas.*
- *Enlarged Krylov subspace methods for reducing communication*, PASC 17, MS 45, Lugano, Switzerland (June 2017).
- *Enlarged GMRES*, SIAM CSE17, MS254, Atlanta, USA (March 2017). *I filled in for Hussam Al Daas.*
- *Adaptive enlarged Krylov conjugate gradient*, DD24, MS01, Longyearbyen, Norway (February 2017).
- *Iterative methods for solving linear systems on supercomputers*, Junior Seminar, Inria Paris (December 2016).

Reviewer

- Journals: Parallel Computing (ParCo), SIAM SISC.
- Conference: PASC18.

TEACHING

Matrix Calculus (1M004)

Teaching Assistant

Feb. – May 2018 | Sorbonne University

Introduction to Matrix Calculus for first-year students in Physics (18 hours).

Calculus (1M001)

Teaching Assistant

Sep. – Dec. 2017 | Sorbonne University

Introduction to Analysis for first-year students in Mathematics (38.5 hours).

PROFESSIONAL TRAINING

CEMRACS 2016

Summer School

Jul. – Aug. 2016 | Marseille, France

- 1 week of courses (Domain Decomposition, Parallelism in time, Data Assimilation, PETSc, OpenMP, ...).
- 5 weeks working on the mini-project *Enlak* with Hussam Al Daas.

University of California, Berkeley

Visiting Scholar

Jan. – Mar. 2016 | Berkeley (CA), USA

3-month visit in Jim Demmel's group.