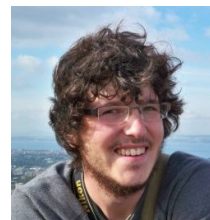


## Clément Weisbecker, Ph.D.

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## Research Interests

My main research interests are in many aspects of [Computational Linear Algebra](#). So far, I focused my activity on direct methods for the solution of dense and sparse linear systems. I investigate [fast low-rank approximation kernels and methods](#). I co-authored a research implementation of Block Low-Rank kernels in [MUMPS](#) (MULTifrontal Massively Parallel Solver) in which project I have been involved as a Ph.D. student.

## Professional experience

January 2014 to date	Internship at Livermore Software Technology Corporation, 7374 Las Positas Road, Livermore CA 94551, United States. Acquirement of knowledge on the multi-physics simulation code LS-DYNA and its linear algebra kernels.
April-Sept. 2010	Internship at IRIT (Computer Science Research Institute of Toulouse), 2 rue Charles Camichel, Toulouse, France, with APO (Parallel Algorithms and Optimization) team. Collaboration to MUMPS project. Study on low-rank approximations of frontal matrices.
July-August 2009	Internship at Tor Vergata University, via di Tor Vergata, Rome, Italy, in Salvatore Filippone's team. Study on one-way dissection algorithms to reduce the fill-in in sparse matrix factorizations.
July 2008	Internship at Bragard S.A., 50 rue Leo Valentin, 88000 Épinal, France. Factory worker in the expedition and reception teams.

## Education

October 2010 – October 2013	Ph.D. degree in Computer Science and Applied Mathematics at INPT(ENSEEIH)-IRIT, 2 rue Charles Camichel, 31000 Toulouse, France. Ph.D. thesis: <a href="#">Improving multifrontal solvers by means of algebraic Block Low-Rank representations</a> . Awarded the selective Leopold Escande Prize. Defense date: 28/10/2013. Advisors: <a href="#">Patrick Amestoy</a> and <a href="#">Alfredo Buttari</a> .
July 2011	Hausdorff Research Institute for Mathematics, Poppelsdorfer Allee 45, 53115 Bonn, Germany. Summer school on $\mathcal{H}$ -matrices with W. Hackbusch, S. Börm and L. Grasedyck.
Sept.-Dec. 2009	University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL, Scotland, United Kingdom. Visiting student (financial mathematics, applied mathematics, economics, computer science).
2007–2010	ENSEEIH, 2 rue Charles Camichel, 31000 Toulouse, France MSc & Engineering degree in Computer Science and Applied Mathematics. Master's thesis: <a href="#">Frontal matrices factorizations – Low-rank forms</a> .

## Publications

2013	C. Weisbecker, P. Amestoy, O. Boiteau, R. Brossier, A. Buttari, J.-Y. L'Excellent, S. Operto and J. Virieux. <a href="#">3D frequency-domain seismic modeling with a Block Low-Rank algebraic multifrontal direct solver</a> . Proceeding of International Conference "Society of Exploration Geophysicists (SEG) Annual Meeting" with peer-review, Houston, USA.
2013	E. Agullo, P. Amestoy, A. Buttari, A. Guermouche, G. Joslin, J.-Y. L'Excellent, X. S. Li, A. Napov, F.-H. Rouet, M. Sid-Lakhdar, S. Wang, C. Weisbecker and I. Yamazaki. <a href="#">Recent advances in sparse direct solvers</a> . Proceeding of International Conference on Structural Mechanics in Reactor Technology (SMIRT-22) with peer-review, San Francisco, USA.
2013	P. Amestoy, A. Buttari, G. Joslin, J.-Y. L'Excellent, M. Sid-Lakhdar, C. Weisbecker, M. Forzan, C. Pozza, R. Perrin and V. Pellissier. <a href="#">Shared memory parallelism and low-rank approximation techniques applied to direct solvers in FEM simulation</a> . IEEE Transactions on Magnetics, IEEE, Numéro spécial Extended selected short papers from Compumag 2013 conference, Budapest, Hungary.
2012	P. Amestoy, C. Ashcraft, O. Boiteau, A. Buttari, J.-Y. L'Excellent and C. Weisbecker. <a href="#">Improving multifrontal methods by means of block low-rank representations</a> . SIAM Journal on Scientific Computing (under revision).

## Presentations

SIAM Parallel Processing 2014, Portland (OR), United States	<a href="#">Parallelization and Pivoting in a Block-Low Rank Multifrontal Solver</a> . Joint work with P. Amestoy, C. Ashcraft, O. Boiteau, A. Buttari and J.-Y. L'Excellent.
Sparse Days 2013, CERFACS, Toulouse, France	<a href="#">Block Low-Rank (BLR) approximations to improve multifrontal sparse solvers</a> . Joint work with P. Amestoy, C. Ashcraft, O. Boiteau, A. Buttari and J.-Y. L'Excellent.
SIAM Linear Algebra 2012, Valencia, Spain	<a href="#">Improving Multifrontal Methods by means of Low-Rank Approximation techniques</a> . Joint work with P. Amestoy, C. Ashcraft, O. Boiteau, A. Buttari and J.-Y. L'Excellent.
Preconditioning 2011, Bordeaux, France	<a href="#">Grouping variables in Frontal Matrices to improve Low-Rank Approximations in a Multifrontal Solver</a> . Joint work with P. Amestoy, C. Ashcraft, O. Boiteau, A. Buttari and J.-Y. L'Excellent.

## Languages

French	Native language.
English	Fluent, TOEIC 930 (2010).
German	Intermediate level.