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### **EDUCATION**

#### **PhD**

Computer Science Department  
University of Houston  
Houston, Texas  
2005

ISBN: 978-0542512018

#### **MS**

Electrical Engineering Department  
Wrocław University of Technology  
Wrocław, Poland  
2000

### **EXPERIENCE**

#### **Research Director**

#### **Research Scientist**

#### **Senior Research Associate**

Innovative Computing Laboratory  
Electrical Engineering and Computer Science Department  
University of Tennessee  
Knoxville, Tennessee

September 2010 – present  
March 2009 – August 2010  
January 2006 – February 2009

#### **Research Assistant**

Institute for Molecular Design  
Department of Chemistry  
University of Houston  
Houston, Texas

January 2001 – December 2005

## BOOK EDITOR

J. Kurzak, D. Bader, J. Dongarra (editors)  
**Scientific Computing with Multicore and Accelerators**  
Computational Science series, Chapman & Hall/CRC, 2010  
[ISBN: 978-1439825365](#)

## BOOK CHAPTERS

- [9] J. Dongarra, J. Kurzak, P. Luszczek, S. Tomov  
**Dense Linear Algebra on Accelerated Multicore Hardware**  
In *High-Performance Scientific Computing: Algorithms and Applications (in preparation)*  
Springer-Verlag  
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- [8] J. Kurzak, P. Luszczek, A. YarKhan, M. Faverge, J. Langou, H. Bouwmeester, J. Dongarra  
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Chapman & Hall/CRC  
<http://www.crcpress.com/>
- [7] P. Luszczek, J. Kurzak, J. Dongarra  
**Changes in Dense Linear Algebra Kernels: Decades-Long Perspective**  
In *Solving the Schrödinger equation: has everything been tried?*  
Imperial College Press  
[ISBN: 978-1848167247](#)
- [6] W. Alvaro, J. Kurzak, J. Dongarra,  
**Implementing Matrix Multiplication on the Cell B. E.**  
In *Scientific Computing with Multicore and Accelerators*,  
Computational Science series, Chapman & Hall/CRC, 2010  
[ISBN: 978-1439825365](#)
- [5] J. Kurzak, J. Dongarra  
**Implementing Matrix Factorizations on the Cell B. E.**  
In *Scientific Computing with Multicore and Accelerators*,  
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[ISBN: 978-1439825365](#)
- [4] J. Kurzak, H. Ltaief, J. Dongarra, R. Badia  
**Scheduling for Numerical Linear Algebra Library at Scale**  
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Advances in Parallel Computing series, IOS Press, 2010  
[ISBN: 978-1607500735](#)
- [3] A. Buttari, J. J. Dongarra, J. Kurzak, J. Langou  
**Parallel Dense Linear Algebra Software in the Multicore Era**  
In *Cyberinfrastructure Technologies and Applications*  
Nova Science Publishers, Inc., 2009  
[ISBN: 978-1606920633](#)
- [2] A. Buttari, J. Dongarra, J. Kurzak, P. Luszczek, S. Tomov  
**Using Mixed Precision in Solving Linear Systems of Equations**  
In *High Performance Computing and Grids in Action*  
Advances in Parallel Computing series, IOS Press, 2008  
[ISBN: 978-1586038397](#)
- [1] J. Demmel, B. Parlett, W. Kahan, M. Gu, D. Bindel, Y. Hida, E. J. Riedy, C. Voemel,  
J. Kurzak, A. Buttari, J. Langou, S. Tomov, J. Dongarra, X. Li, O. Marques, J. Langou, P. Luszczek  
**Prospectus for a Dense Linear Algebra Software Library**  
In *Handbook of Parallel Computing: Models, Algorithms and Applications*  
Computer and Information Science series, Chapman & Hall/CRC, 2008  
[ISBN: 978-1584886235](#)

## JOURNAL PUBLICATIONS

- [18] J. Kurzak, S. Tomov, J. Dongarra  
**Autotuning GEMM Kernels for the Fermi GPU**  
*IEEE Transactions on Parallel and Distributed Systems* (accepted)  
<http://www.computer.org/portal/web/tpds>
- [17] J. Kurzak, H. Ltaief, J. Dongarra, Rosa M. Badia  
**Scheduling Dense Linear Algebra Operations on Multicore Processors**  
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*Scientific Programming* 18(1):35-50, 2010  
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*Computer Physics Communications*, 40<sup>th</sup> Anniversary Issue 180(12):2526-2533, 2009  
[DOI: 10.1016/j.cpc.2008.11.005](https://doi.org/10.1016/j.cpc.2008.11.005)
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*Scientific Programming*, Special Issue: High Performance Computing with the Cell Broadband Engine  
17(1-2):31-42, 2009  
[DOI: 10.3233/SPR-2009-0268](https://doi.org/10.3233/SPR-2009-0268)
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*Parallel Computing: Systems & Applications*, Special Issue: Revolutionary Technologies for Acceleration of Emerging Petascale Applications 35(3):138-150, 2009  
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*Parallel Computing: Systems and Applications* 35:38-53, 2009  
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- [10] A. Buttari, J. Langou, J. Kurzak, J. Dongarra  
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**Using Mixed Precision for Sparse Matrix Computations to Enhance the Performance While Achieving 64-bit Accuracy**  
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**Mixed Precision Iterative Refinement Techniques for the Solution of Dense Linear Systems**  
*International Journal of High Performance Computing Applications* 21(4):457-466, 2007  
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- [7] J. Kurzak, A. Buttari, J. Dongarra  
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- [11] J. Kurzak, P. Luszczek, J. Dongarra  
**Programming the LU Factorization for a Multicore System with Accelerators**  
*VECPAR'12: International Meeting on High-Performance Computing for Computational Science*, Kobe, Japan, 2012  
*Lecture Notes in Computer Science* XXXX:xxx-xxx, Springer, 201x  
<http://nkl.cc.u-tokyo.ac.jp/VECPAR2012/> (submitted)
- [10] J. Kurzak, R. Nath, P. Du, J. Dongarra  
**An Implementation of the Tile QR Factorization for a GPU and Multiple CPUs**  
*PARA'10: State of the Art in Scientific and Parallel Computing*, Reykjavík, Iceland, 2010  
*Lecture Notes in Computer Science* 7133:xxx-xxx, Springer, 201x  
<http://www.gestamottakan.is/para2010/home.html>
- [9] E. Agullo, H. Bouwmeester, J. Dongarra, J. Kurzak, J. Langou, L. Rosenberg  
**Towards and Efficient Tile Matrix Inversion of Symmetric Positive Definite Matrices on Multicore Architectures**  
*VECPAR'10: High Performance Computing for Computational Science*, Berkeley, California, 2010  
DOI: [10.1007/978-3-642-19328-6\\_14](https://doi.org/10.1007/978-3-642-19328-6_14)
- [8] E. Agullo, J. Demmel, J. Dongarra, B. Hadri, J. Kurzak, J. Langou, H. Ltaief, P. Luszczek, S. Tomov  
**Numerical Linear Algebra on Emerging Architectures: The PLASMA and MAGMA Projects**  
*SciDAC'09: Scientific Discovery through Advanced Computing*, San Diego, California, 2009  
*Journal of Physics: Conference Series* 180:012037, IOP Publishing, 2009  
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**Fast and Small Short Vector SIMD Matrix Multiplication Kernels for the Synergistic Processing Element of the CELL Processor**  
*ICCS'08: International Conference on Computational Science*, Kraków, Poland, 2008  
*Lecture Notes in Computer Science* 5101:935-944, Springer, 2008  
DOI: [10.1007/978-3-540-69384-0\\_98](https://doi.org/10.1007/978-3-540-69384-0_98)
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**Parallel Tiled QR Factorization for Multicore Architectures**  
*PPAM'07: International Conference on Parallel Processing and Applied Mathematics*, Gdańsk, Poland, 2007  
*Lecture Notes in Computer Science* 4967:639-648, Springer, 2007  
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- [5] J. Langou, J. Langou, P. Luszczek, J. Kurzak, A. Buttari, J. Dongarra  
**Exploiting the Performance of 32 Bit Floating Point Arithmetic in Obtaining 64 Bit Accuracy (Revisiting Iterative Refinement for Linear Systems)**  
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*SciDAC'07: Scientific Discovery through Advanced Computing*, Boston, Massachusetts, 2007  
*Journal of Physics: Conference Series* 78:012028, IOP Publishing, 2007  
DOI: [10.1088/1742-6596/78/1/012028](https://doi.org/10.1088/1742-6596/78/1/012028)
- [3] J. Kurzak, J. Dongarra,  
**Implementing Linear Algebra Routines on Multi-Core Processors with Pipelining and a Look Ahead**  
*PARA'06: State of the Art in Scientific and Parallel Computing*, Umeå, Sweden, 2006  
*Lecture Notes in Computer Science* 4699:147-156, Springer, 2007  
DOI: [10.1007/978-3-540-75755-9\\_18](https://doi.org/10.1007/978-3-540-75755-9_18)
- [2] J. Demmel, J. Dongarra, B. Parlett, W. Kahan, M. Gu, D. Bindel, Y. Hida, X. Li, O. Marques, E. J. Riedy, C. Voemel, J. Langou, P. Luszczek, J. Kurzak, A. Buttari, J. Langou, S. Tomov  
**Prospectus for the Next LAPACK and ScaLAPACK Libraries**  
*PARA'06: State of the Art in Scientific and Parallel Computing*, Umeå, Sweden, 2006  
*Lecture Notes in Computer Science* 4699:11-23, Springer, 2007  
DOI: [10.1007/978-3-540-75755-9\\_2](https://doi.org/10.1007/978-3-540-75755-9_2)
- [1] A. Buttari, J. Dongarra, J. Kurzak, J. Langou, P. Luszczek, S. Tomov  
**Impact of Multicore on Math Software**  
*PARA'06: State of the Art in Scientific and Parallel Computing*, Umeå, Sweden, 2006  
*Lecture Notes in Computer Science* 4699:1-10, Springer, 2007  
DOI: [10.1007/978-3-540-75755-9\\_1](https://doi.org/10.1007/978-3-540-75755-9_1)

## TECHNICAL REPORTS (not published elsewhere)

J. Kurzak, J. Dongarra

### **LAPACK Working Note 220:**

#### **Fully Dynamic Scheduler for Numerical Computing on Multicore Processors**

Technical Report UT-CS-09-643, Department of Computer Science, University of Tennessee, 2009

<http://www.netlib.org/lapack/lawns/pdf/lawn220.pdf>

H. Ltaief, J. Kurzak, J. Dongarra

### **LAPACK Working Note 208:**

#### **Parallel Block Hessenberg Reduction Using Algorithms-by-Tiles for Multi-core Architectures Revisited**

Technical Report UT-CS-08-624, Department of Computer Science, University of Tennessee, 2009

<http://www.netlib.org/lapack/lawns/pdf/lawn208.pdf>

A. Buttari, J. Dongarra, J. Kurzak

### **LAPACK Working Note 185:**

#### **Limitations of the PlayStation 3 for High Performance Cluster Computing**

Technical Report UT-CS-07-597, Department of Computer Science, University of Tennessee, 2007

<http://www.netlib.org/lapack/lawns/pdf/lawn186.pdf>

A. Buttari, P. Luszczek, J. Kurzak, J. Dongarra, G. Bosilca

### **SCOP3: A Rough Guide to Scientific Computing On the PlayStation 3**

Technical Report UT-CS-07-595, Department of Computer Science, University of Tennessee, 2007

[www.netlib.org/utk/people/JackDongarra/PAPERS/scop3.pdf](http://www.netlib.org/utk/people/JackDongarra/PAPERS/scop3.pdf)

## POPULAR SCIENCE

J. Kurzak, A. Buttari, P. Luszczek, J. Dongarra

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Computing in Science and Engineering 10(3):84-87, 2008

[ISSN: 1521-9615](http://www.netlib.org/utk/people/JackDongarra/PAPERS/scop3.pdf)

## TUTORIALS

D. Göddeke, J. Kurzak, J. P. Weiß

### **Scientific Computing on GPUs**

PPAM 2011: *Parallel Processing and Applied Mathematics*, Toruń, Poland, 2011

J. Dongarra, J. Kurzak

### **LINPAK on Future Manycore & GPU Based Systems**

ISC 2010'11: *International Supercomputing Conference*, Hamburg, Germany, 2010'11

J. Kurzak

### **Cell Broad Engine Programming to the Metal**

AFRL / Griffis Institute, Rome, NY, 2009

J. Kurzak, A. Buttari

### **Introduction to Programming High Performance Applications on the CELL Broadband Engine**

HOTI 2007: *15th Annual IEEE Symposium on High-Performance Interconnects*, Stanford, CA, 2007

## REVIEWER

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Journal of Parallel and Distributed Computing (Elsevier)  
Parallel Computing: Systems and Applications (Elsevier)  
Concurrency and Computation: Practice and Experience (Wiley)  
International Journal of High Performance Computing Applications (SAGE)  
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IBM Journal of Research and Development (IBM)  
Transactions on Mathematical Software (ACM)  
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Computing in Science & Engineering (IEEE)  
International Conference on Supercomputing (ICS)  
International Parallel & Distributed Processing Symposium (IPDPS)  
Workshop on State-of-the-Art in Scientific and Parallel Computing (PARA)  
International Conference on Parallel Processing and Applied Mathematics (PPAM)  
International Conference on High Performance and Embedded Architectures and Compilers (HiPEAC)

Springer  
Taylor & Francis  
U.S. Department of Energy, Office of Science  
Natural Sciences and Engineering Research Council of Canada

## PROGRAM COMMITTEE

**CCGrid:** *IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing ('10'11)*  
**Cluster:** *IEEE International Conference on Cluster Computing ('09'10'11)*  
**Euro-Par:** *European Conference on Parallel Processing ('10)*  
**PPAM:** *International Conference on Parallel Processing and Applied Mathematics ('09)*  
**SAAHPC:** *Symposium on Application Accelerators in High Performance Computing ('11)*

## GRANTS

J. Dongarra, J. Kurzak, P. Luszczek  
**PULSAR: Parallel Unified Linear Algebra with Systolic Arrays**  
National Science Foundation

J. Dongarra, J. Kurzak, J. Langou  
**PLASMA: Parallel Linear Algebra Software for Multiprocessor Architectures**  
National Science Foundation

## COLLABORATORS

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