Curriculum Vitae Dick H.J. Epema

September 2018

Date and place of birth 26 January 1956, Amsterdam, the Netherlands

Work address Faculty of Electrical Engineering,
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Positions

Current positions

Professor of Computer Science, Distributed Systems (DS) Group, Delft University of Technology 2015-

- Head of the Section Distributed Systems
- Research interests: distributed systems (big-data processing, scheduling, cooperative systems, blockchain)
- Teaching and supervision at the bachelor's, master's, and PhD levels
- Leading research projects
- Valorization of teaching and research
- Chairing and organizing workshops and conferences
- Mentoring junior faculty members

Director Delft Blockchain Lab 2017-

Previous positions

Assistant professor of Computer Science, Leiden University 1983-1984

- In 1981, in the middle of my PhD period, Computer Science was established as an independent discipline at Dutch universities. As I showed interest in it during my PhD, I was offered an assistant professorship in Computer Science.

Assistant professor of Computer Science, Delft University of Technology 1984-1999

- Operating Systems Group (1984-1996)
- Parallel and Distributed Systems Group (1996-1999)

Associate professor of Computer Science, Delft University of Technology 1999-2015

- Parallel and Distributed Systems Group

Part-time full professor of Computer Science in *Decentralized Distributed Systems,* System Architecture and Networking Group, Eindhoven University of Technology 2011-2016

- Teaching at the master's and PhDEng levels
- Supervision of one PhD student
- Contribution of a topic in both teaching (Cloud Computing) and research (resource management in distributed computing systems) that was not present in Eindhoven

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Visiting positions

Visiting Scientist, IBM T.J. Watson Research Center, Yorktown Heights, NY, USA Jul 1987-Jul 1988

- Research in the application of expert systems to the performance management of large computer systems

Visiting Scientist, IBM T.J. Watson Research Center, Yorktown Heights, NY, USA Sept-Dec 1991

- Research in scheduling in multiprocessors

Visiting Lecturer, Department of Applied Sciences, KU Leuven, Belgium Course *Distributed Algorithms*	Oct-Dec 1992
Visiting Scientist, IBM T.J. Watson Research Center, Yorktown Heights, NY, USA • Research in replication in distributed databases	Jun-Sept 1998
Sabbatical University of California at Santa Barbara (UCSB) • Research in Online Social Networks	Sept-Dec 2009

Education

Education	**Highschool**: Willem de Zwijgerlyceum, Bussum (gymnasium)	1968-1974
	BSc ("kandidaatsexamen") Mathematics, Leiden University • Minors in physics and astronomy • With honors (cum laude)	1974-1976
	MSc ("doctoraalexamen") Mathematics, Leiden University • Major in algebraic geometry • Minor in Spanish • With honors (cum laude) • Teaching assistant	1976-1979
	PhD Mathematics, Leiden University • Thesis subject in algebraic geometry • PhD thesis *Surfaces with Canonical Hyperplane Sections* • Promotor prof.dr. J.P. Murre • Leiden was then very prominent in algebraic geometry	1979-1983
	MSc Computer Science, Delft University of Technology • In order to have a solid foundation in Computer Science after my switch from mathematics, I completed the master's program in Computer Science (then still not divided in BSc and MSc) • Master's thesis *A VM Performance Analyzer, Interpreter, and Advisor* (performed at IBM T.J. Watson Research Center) • Supervisor prof.dr.ir. W.L. van der Poel • With honors (cum laude)	1984-1988

University Leadership and Management

Management of people

Mentoring and co-assessing junior faculty

- Advising and coaching both junior faculty members of the DS group — 2007-

Supervision of PhD students and postdocs

- 17 PhD theses completed, 5 in progress (for names and topics, see under *Research*)
- 12 postdocs (for names, see under *Research*)
- Mentor of PhD students in the Graduate School of TU Delft

Member assessment committees

- Member of the assessment committee for a "Habilitation a Diriger des Recherches" at ENS Lyon/INRIA — 2010
- Advisor Tenure, KTH, Sweden — 2012
- Advisor Tenure, Nanyang Technical University, Singapore — 2012
- Member Search Committee for an associate professor, VU Amsterdam — 2013
- Advisor Tenure, University of Calgary, Canada — 2013
- Member of the assessment committee for a "Habilitation a Diriger des Recherches" at INRIA Sophia Antipolis — 2016
- Member of the assessment committee for a full professorship at the University of Minnesota — 2017
- Member of the assessment committee for an associate professorship at the University of Linköping — 2017

Management of research

Co-author of the self-assessment report of Computer Science research at TUD — 2002-2003

- External research assessment at Dutch universities ("visitatie") in 2003 (report written with W. Bronsvoort)

Member and Chairman of the NWO (Dutch National Science Foundation) VIDI Assessment Committee for the Exact Sciences — 2003-2005

- VIDI grants are intermediate-level career-development grants
- Chairman of the committee — 2004-2005
- Assessment and selection of proposals (astronomy, computer science, and mathematics)

Member of the Program Committee of the NWO program GLANCE — 2004-2007

- Special program of NWO on large-scale parallel and distributed systems
- Co-author of the call for proposals with H.E. Bal (VU)

Member of the NWO Assessment Committee Computer Science ("vrije competitie") — 2005-2007

- Grant scheme without restrictions on the research topic
- Assessment and ranking of research proposals

Member of the NWO Committee Investments "Middelgroot" 2010-2012
- Assessment and ranking of proposals for research equipment of up to €900,000

Member of the Review Committee for the COrrelator and Beamformer Application computing infrastructure for the Lofar Telescope (COBALT) at ASTRON (Dutch Research Institute for Radio Astronomy) 2013

Representative for TU Delft in the Informatica-Onderzoek Platform Nederland (IPN) 2016-

Chairman of the Board of the ASCI Research School 2017-

Member of the assessment committee of the PhD programs in mathematics and computer science in Estonia 2018

Representative for TU Delft in Informatics Europe 2018-

Education leadership

Member and Chairman of the Education Committee Computer Science (Opleidingscommissie Technische Informatica)
- Advisory committee on educational matters composed of staff members and students 1991-2001
- Chairman of the committee 1995-2001
- Led the introduction of course evaluation with questionnaires before this was done at the TUD level 1992
- Initiated course evaluation sessions with students and teachers 1992
- Led the restructuring of the Computer Science curriculum because of the extension of the curriculum from 4 to 5 years 1994
- Co-authored the self-assessment report of Computer Science education at TU Delft for the external assessment of computer-science education at Dutch universities ("onderwijsvisitatie") 1996
- Led the complete redesign of the Computer Science curriculum after the external assessment of computer-science education at Dutch universities in 1996 1997

Chairman of the Education Committee of the Research School ASCI 2000-2006
- The Advanced School for Computing and Imaging **(**ASCI) is a collaboration of Computer Science Departments of Dutch Universities on research and PhD Education
- Main tasks are composing and evaluating the course program

Chairman of the MSc Examination Committee for the MSc Programs Computer Engineering and Embedded Systems 2006-2008
- Main task is judging whether students have satisfied all requirements for receiving their master's degree

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Member of the general Examination Committee of the Faculty EEMCS 2006-2008

- Main task is setting policies for holding exams and rules for approving individual course programs
- Composed of the chairmen of the separate examination committees

Coordinator for TU Delft of the EIT ICTLabs MSc program *Cloud Computing and Services* 2014-

- As of 2015, TUD participates in this master's program

Member of the MSc Educational Board (MEB) Computer Science 2014-

- Defining the new two-track master's program in Computer Science

Community Leadership and Service

General and Program Co-chair of the annual conference of the Dutch Research School ASCI	1998, 2008
Global Chair of the Topic Peer-to-Peer Systems of *Euro-Par*	2008
Initiator and Co-chair of the *Workshop on Large-scale Systems and Application Performance* (LSAP, in conjunction with *HPDC*)	2009-2011
General and Program Co-chair of the conference *Euro-Par* in Delft (with H.-X. Lin and H.J. Sips) • Web site at http://europar2009.ewi.tudelft.nl	2009
Program Vice-Chair Performance Modeling and Evaluation of the *10th IEEE/ACM Int'l Symp. on Cluster, Cloud and Grid Computing* (CCGrid)	2010
General Co-chair of the *10th IEEE Int'l Conf. on P2P Computing* in Delft (with H.J. Sips) • Web site at http://p2p10.org	2010
General Chair of the *21st ACM Symp. on High-Performance Parallel and Distributed Computing* (HPDC) in Delft: • Very large number of paper submissions for a European venue (140) • Very large number of attendees for a European venue (150) • Initiated the *HPDC* Achievement Award • Initiated with the PC Co-chairs a two-phase review process and author rebuttals • Helped in branding *HPDC* with a new web design that is still being used • Web site at http://www.hpdc.org/2012	2012
General Chair of the *13th IEEE/ACM Int'l Symp. on Cluster, Cloud, and Grid Computing* (CCGrid) in Delft • 250 paper submissions • 150 attendees • Web site at http://www.ds.ewi.tudelft.nl/ccgrid2013	2013
Program Co-chair of the *22nd ACM Symp. on High-Performance Parallel and Distributed Computing* (HPDC)	2013
Area Program Chair of *Supercomputing* for the area *Clouds and Distributed Computing*	2016

Membership of Steering Committees of Conferences

- *IEEE/ACM Int'l Symposium on Cluster, Cloud and Grid Computing* (CCGrid) 2010-
- *IEEE Int'l Conference on Peer-to-Peer Computing* 2010-2015
- *ACM Int'l Symposium on High-Performance Parallel and Distributed Computing* (HPDC) 2012-2016

Editorships

- Associate Editor *IEEE Transactions on Parallel and Distributed Systems* 2008-2014
- Associate Editor *IEEE Transactions on Cloud Computing* 2013-

Guest Editor

- Co-editor of the volume with the 20 best papers of the first 20 years of *HPDC* 2013
- Special issue of the *Journal on Cluster Computing* with the best papers of *HPDC'13* (with R. Figueiredo) 2014

Selected memberships of program committees

- *IFIP Symp. on Computer Performance Modeling, Measurement and Evaluation* 2002
- *IEEE/ACM Cluster Computing and the Grid* (CCGrid) 2002, 2009, 2010 (**Program Vice-Chair** Performance Modeling and Evaluation), 2011, 2014, 2016, 2018
- *IEEE Grid* 2005, 2008, 2010
- *ACM Symp. on High-Performance Distributed Computing* (HPDC) 2006, 2008, 2009, 2011, 2013 (**Program Co-Chair**), 2014-18
- *Int'l Conference on Distributed Computing Systems* (ICDCS) 2007, 2018
- *IEEE P2P Computing* 2007, 2008, 2009, 2012
- *Euro-Par* 2007, 2008 (**Global Chair** topic Peer-to-Peer Systems)
- *Int'l Workshop on Peer-To-Peer Systems* (IPTPS) 2008
- *Int'l Parallel and Distributed Processing Symposium* (IPDPS) 2008
- *Workshop on Job Scheduling Strategies for Parallel Processing* (JSSPP), 2010, 2012-2017
- *SuperComputing* 2013, 2017
- *MASCOTS* 2015, 2016

Reviewing for many conferences and journals (ACM, IEEE, etc)

Miscellaneous

- Member of the Panel "On the Future of Parallel and Distributed Computing" at *HPDC 2011*

Research

Current research projects/ funding

e-Infrastructure Virtualization for e-Science Applications 2011-2017
- With the VU University, the University of Amsterdam and companies
- Project P20 of the national research program COMMIT
- Leader of two Work Packages
- TUD research: resource management and scheduling
- TUD funding: €570,000 (2 PhD students and 1 post-doc)

DAS5
- NWO project with Leiden University, the University of Amsterdam, the VU, and ASTRON 2014-2018
- Fifth-generation of the Distributed ASCI Supercomputer
- Member Steering Committee
- Equipment for computer-science research (6 clusters)
- TUD funding: €103,000 from NWO (total funding €622,000) plus €75,000 from COMMIT and the Netherlands eScience Center (NLeSC)

DAS6 2018-2022
- See DAS5
- TUD funding: €83,000

Previous research projects/ funding

CACTUS 2002-2004
- Part of the national research program BSIK
- Research on ad-hoc mobile networks
- TUD/PDS personnel: 1 post-doc

Two-Level Peer-to-Peer Systems 2002-2008
- NWO project on heterogeneous peer-to-peer systems
- Project leader
- TUD funding: €145,000 (1 PhD student)

CoreGRID 2004-2008
- EU FP6 Network of Excellence on grids (42 partners)
- TUD funding: €97,000 (1 post-doc and 1 exchange researcher)

I-SHARE 2004-2009
- BSIK project with various universities and companies
- Project leader for the PDS group and Work Package leader
- Research on Peer-to-Peer systems, development of Tribler
- TUD/PDS funding: €420,000 (1 PhD student, 1 post-doc, 1 programmer)

Virtual Lab for e-Science (VL-e) 2004-2010
- BSIK project with various universities and companies
- Project leader for TUD
- Research in grids
- TUD/PDS funding: €600,000 (2 PhD students and 3 post-docs)

Tribler Valorization 2006-2008
- BSIK project as an addition to I-SHARE
- Project leader
- Goal: the valorization of the Tribler peer-to-peer technology (see under Valorization for details)
- TUD funding: €243,000 (2 business contact persons and 3 programmers)

P2P-Fusion 2006-2009
- EU FP6 STREP on Peer-to-Peer systems
- Project leader for TUD
- With J.A. Pouwelse (TUD/PDS)
- TUD funding: €522,000 (2 PhD students and 1 post-doc)

DAS3 2006-2010
- NWO project with Leiden University, the University of Amsterdam, and the VU
- Third-generation DAS system with 5 clusters
- Member Steering Committee
- TUD funding: €180,000 (total funding €900,000)

GUARD-G 2007-2012
- Project in the NWO GLANCE program with Leiden University on resource management in grids
- Project leader
- Total/TUD funding: € 450,000/285,000 (1 PhD student and 1 post-doc)

P2P-NEXT 2008-2012
- EU FP7 IP on Peer-to-Peer Systems
- With J.A. Pouwelse (TUD project leader)
- TUD personnel: 6 PhD students, 2 postdocs and 4 programmers

ALEAE 2009-2010
- Project with INRIA, France on failures in distributed systems
- Project leader for TUD
- Total budget: €86,000

QLectives 2009-2013
- EU FP7 IP on Peer-to-Peer Systems
- With J.A. Pouwelse (TUD project leader)
- TUD personnel: 4 PhD students and 3 postdocs

COST Action complexHPC 2009-2013
- EU COST Action IC0805 on High-Performance Computing

DAS4 2010-2014
- NWO project with Leiden University, the University of Amsterdam, the VU, and ASTRON
- Fourth generation DAS system with 6 clusters
- Member Steering Committee
- TUD funding: €150,000 (total funding €900,000)

RMAC (Resource Management Across Clouds) 2012
- EIT ICTLabs project in the Cloud Action Line
- Project leader
- Partners: KTH (Sweden), INRIA and Institut Telecom (France), TUDelft and TU Eindhoven (the Netherlands)
- TUD and TU/e funding: € 60,000 each

Two Chinese Scholarship Council (CSC) PhD grants
- Two PhD students 2010-2015
- With A. Iosup (TUD/PDS) 2011-2016

Current PhD students
- A. Ilyushkin (workflow scheduling, with A. Iosup) 2013-
- A. Kuzmanovska (scheduling frameworks in datacenters, TU Eindhoven, with R.H. Mak) 2013-
- Vincent van Beek (scheduling business-critical workloads in clouds, with A. Iosup) 2015-
- Martijn de Vos (blockchain technology, with J. Pouwelse) 2016-
- Quinten Stokkink (blockchain technology, with J. Pouwelse) 2017-
- Sobhan Omranian Khorasani (data processing frameworks, with J. Rellermeyer) 2018-

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Previous PhD students
1. J.F.C.M. de Jongh, currently with TNO 2002
   Share-Scheduling in Distributed Systems
2. A.I.D. Bucur, currently with Philips Research 2004
   Performance Analysis of Processor Co-Allocation in Multicluster Systems
3. H.H. Mohamed, currently with Flow Traders, Amsterdam 2007
   The Design and Implementation of the KOALA Grid Resource Management System
4. P. Garbacki, currently with Pinterest, USA 2008
   Improving P2P Applications by Breaking the Architecture Symmetry
5. A. Iosup, currently assistant professor in the PDS group 2009
   A Framework for the Study of Grid Inter-operation Mechanisms
6. J.J.D. Mol, currently with ASTRON 2010
   Free-riding Resilient Video Streaming in Peer-to-Peer Networks
7. O.O. Sonmez, currently with Huawei, Istanbul 2010
   Application-Oriented Scheduling in Multicluster Grids
8. M. Meulpolder, currently with Getronics 2011
   Managing Supply and Demand of Bandwidth in Peer-to-Peer

	Communities	
	9. M.N. Yigitbasi, currently with Netflix, USA *Understanding and Improving the Performance Consistency of Distributed Computing Systems*	2012
	10. R. Delaviz Aghbolah, currently with Cool Blue, Rotterdam *A Rubust Decentralized Reputation Mechanism for Peer-to-Peer Systems*	2013
	11. A.L. Jia *Online Networks as Societies: User Behaviors and Contribution Incentives*	2013
	12. D. Gkorou, currently with Xomnia, Amsterdam *Exploiting Graph Properties for Decentralized Reputation Systems*	2014
	13. Siqi Shen, currently with TU Delft *Massivizing Networked Virtual Environments on Clouds*	2015
	14. M. Capotă, currently with Intel Labs, USA *User Contribution in Peer-to-Peer Communities*	2015
	15. R. Petrocco, currently with Spotify *Improving Peer-to-Peer Video Streaming*	2016
	16. Y. Guo, *Distributed Heterogeneous Systems for Large-Scale Graph Processing*	2016
	17. Bogdan Ghit, *Optimizing the Performance of Data Analytics Frameworks*	2017

Postdocs supervised	• H. Gautama (CACTUS, 2 years)	2002-2004
	• J.A. Pouwelse (I-SHARE, 3 years)	2004-2007
	• C. Dumitrescu (CoreGRID, 9 months)	2005-2006
	• M. Jan (VL-e, 6 months)	2006-2007
	• I. Haratcherev (P2P-Fusion, 2 years)	2006-2008
	• J. Buisson (CoreGRID, 6 months)	2007
	• H.H. Mohamed (VL-e and GUARD-G, 2 years)	2007-2009
	• A. Iosup (VL-e, 10 months)	2008-2009
	• S. Abrishami (visiting from University of Mashad, 6 months)	2009
	• M. Gallat (visiting from ENS Lyon, 4 months)	2009-2010
	• O.O. Sonmez (VL-e, 1.5 years)	2009-2011
	• J. Rouzaud-Cornabas (visiting from ENS Lyon, 2 months)	2014

Keynote talks	• "Exploiting Heterogeneity in Parallel and Distributed Systems," *Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms* (HeteroPar'09)	Aug 2009
	• "Peer-to-Peer File Sharing: Past!-Present-Future? A Delft View," *10th IEEE Int'l Conf. on Peer-to-Peer Computing*	Aug 2011
	• "Twenty Years of Grid Scheduling Research and Beyond," 12th *IEEE/ACM Int'l Symp. on Cluster, Cloud and Grid Computing* (CCGrid) (available at http://www.ds.ewi.tudelft.nl/epema/presentations)	May 2012

Inaugural lectures	• *Decentraliseer—en Beheers?*, Eindhoven University of Technology (text and slides (in Dutch) available at http://www.ds.ewi.tudelft.nl/epema/presentations)	Nov 23, 2012
	• *Gedistribueerde Systemen: van Efficiëntie tot Vertrouwen*, Delft University of Technology (text and slides (in Dutch) available at http://www.ds.ewi.tudelft.nl/epema/presentations)	May 27, 2016

Awards

Best-paper award 2006
6th IEEE Int'l Conference on Peer-to-Peer Computing,
for P. Garbacki, A. Iosup, D.H.J. Epema and M. van Steen,
"2Fast: Collaborative Downloads in P2P Networks"

Best-paper nomination 2007
SuperComputing (SC07),
for A. Iosup, D.H.J. Epema, T. Tannenbaum, M. Farrellee and M. Livny, "Inter-operating Grids through Delegated MatchMaking"

Best-paper award 2010
10th IEEE/ACM Int'l Symposium on Cluster, Cloud and Grid Computing (CCGRID10),
for D. Kondo, B. Javadi, A. Iosup and D.H.J. Epema, "The Failure Trace Archive: Enabling Comparative Analysis of Failures in Diverse Distributed Systems"

Best-paper award 2012
5th Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS),
for B.I. Ghit, M.N. Yigitbasi and D.H.J. Epema, "Resource Management for Dynamic MapReduce Clusters in Multicluster Systems"

Biggest impact award 2012
5th Workshop on Many-Task Computing on Grids and Supercomputers (MTAGS),
for A. Iosup, S. Ostermann, N. Yigitbasi, R. Prodan, Th. Fahringer and D.H.J. Epema, "Performance Analysis of Cloud Computing Services for MTC-Based Scientific Computing," *IEEE Trans. on Parallel and Distributed Systems*, Vol. 22, pp. 931-945, 2011.

Best-paper award 2013
IEEE 21st Int'l Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS'13),
for N. Yigitbasi, T. Willke, G. Liao and D.H.J. Epema, "Towards Machine Learning-Based Autotuning of MapReduce"

Best-paper award 2014
ACM Symposium on Applied Computing, Area Distributed Systems,
for R. Petrocco, M. Capota, J.A. Pouwelse and D.H.J. Epema, "Hiding User Content Interest while Preserving P2P Performance"

Winner SCALE Challenge 2014
IEEE/ACM Symposium on Cluster, Cloud and Grid Computing (CCGrid),
for B. Ghit, M. Capota, T. Hegeman, J. Hidders, D.H.J. Epema and A. Iosup, "V for Vicissitude: The Challenge of Scaling Complex Big Data Workflows"

Teaching

BSc courses	• *Computersystemen* (first year)	1988-2006
	• *Gedistribueerde Systemen* (third year)	2003-2009
	• *Operating Systems* (second year)	2010-2011 2016-2017
	• *BSc Seminar* (third year)	2014-
MSc courses	• *Design and Implementation of Operating Systems*	1986-1999
	• *Distributed Systems* (in 2003 split up into *Gedistribueerde Systemen* and *Distributed Algorithms*)	1989-2003
	• *Distributed Algorithms*	2003-
	• Seminar *Peer-to-Peer Systems* (with J.A. Pouwelse)	2008-2012
	• *Cloud Computing*	2012-
	• *High-Performance Computing*	2016-2018
MSc supervision	• Supervised about 80 master's students • Selected master's theses are available at http://www.ds.ewi.tudelft.nl/epema/teaching	
PhD courses	• *Fundamentals and Design of Distributed Systems* as part of the course program of the Research School ASCI (biennial)	1998-2014
	• *Grid Programming Models* as part of the course program of the Research School ASCI (biennial)	2007-2011
	• *Advanced Blockchain Engineering* as part of the course program of the Research School ASCI (biennial)	2018

Valorization[1]

Valorization projects

- Very extensive **valorization of the Tribler P2P technology** has been done in the separate Tribler Valorization BSIK project, of which I was the project leader, with a total of 5 employees (see *Previous research projects*):
  - We visited dozens of companies, both in the Netherlands and abroad, to present and discuss this technology (broadcasting companies, set-top box manufacturers, Internet companies)
  - We created and released a special light-weight version of the Tribler P2P client for external use
  - We organized two workshops, one on the occasion of a Tribler release (May 2007), and one on the final evaluation of the valorization efforts (Oct 2008)
  - We taught a Tribler technical course (May 2008) with 30 attendees (from companies and other European P2P projects)
  - We wrote a survey of business models
  - One of the project members (Jacco Taal) founded a spin-off company called *Bitnomica* (http://www.bitnomica.com)
  - The Tribler software has been ported by Commodore and Pioneer (partners in the P2P-NEXT project) to their set-top boxes
  - I wrote a final evaluation report on all P2P valorization efforts (available at http://www.pds.ewi.tudelft.nl/fileadmin/pds/homepages/epema/I-Share-D4.16.pdf)

Software/systems made available

- A simplified version of the **Condor Flocking** mechanism that we designed and implemented (see the appendix on research highlights in my Research Statement) has been incorporated into the production version of Condor. Condor is in daily production use in hundreds of places in the world, both in research institutes and in industry (see http://www.cs.wisc.edu/condor/map).

- The **KOALA multicluster scheduler** has been deployed on the DAS since 2005 and has been used by master's and PhD students and by researchers of NIKHEF and Philips Research (see http://www.pds.ewi.tudelft.nl/koala).

Open-data initiatives

- The **Grid Workloads Archive** (GWA, http://gwa.ewi.tudelft.nl) with anonymized traces of the workloads of many research and production grids that we have created is taken by the European EGEE grid, which is probably the largest production grid in the world, as the basis of their so-called "grid observatory." I have given an invited talk on the GWA at the *EGEE'08* conference (installed in 2007, with A. Iosup).

[1] Valorization is the term used by Dutch universities for technology transfer

- The **Failure Trace Archive** (FTA, http://fta.inria.fr) with anonymized traces of failures of diverse distributed systems, created in collaboration with INRIA, France (installed in 2010, with A. Iosup).

- The **Peer-to-Peer Trace Archive** (P2PTA, http://p2pta.ewi.tudelft.nl) with anonymized traces of the workloads of many P2P systems, among which many traces of the BitTorrent system collected by the PDS group (installed in 2011, with A. Iosup).

Dissemination of Blockchain Technology
In the context of the Delft Blockchain Lab (www.tudelft.nl/delft-blockchain-lab)