

# Curriculum Vitae

Stefan Manegold

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## Personalialia

Full name            Stefan Manegold

Affiliation            Centrum Wiskunde & Informatica (CWI)  
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WWW address         <http://www.cwi.nl/~manegold/>

## Examination

December 2002        *Ph.D in Computer Science*  
University of Amsterdam (UvA), The Netherlands  
Thesis:                *Understanding, Modeling, and Improving Main-Memory Database Performance* [b.2]  
Supervisor:           Prof. Dr. M. L. Kersten  
Committee:           Prof. Dr. D. J. DeWitt, Dr. P. van Emde Boas, Prof. Dr. L. O. Hertzberger, Prof. Dr. A. P. J. M. Siebes, Prof. Dr. G. Weikum

September 1994        *M.Sc (Diploma) in Computer Science*  
Technical University Clausthal (TUC), Germany  
Thesis:                *Extending Nested Transactions for the OSCAR Project* [b.1]  
Supervisors:          Prof. Dr. A. Heuer, Prof. Dr. K. Ecker

## Education

1988 – 1994            Technical University Clausthal (TUC), Germany  
Major: Informatics  
Minor: Automatic Control Technology  
Specialization: Relational and object-oriented database systems

1979 – 1988            High School (Gymnasium)  
Friedrich-Wilhelm-Schule & Oberstufengymnasium Eschwege, Germany

## Professional Experience

since 09/2014         *Professor (0.2 fte) “Data Management”*  
Leiden Institute of Advanced Computer Science (LIACS)  
Leiden University, Leiden, The Netherlands

since 01/2011         *Head of “Database Architectures” Research Group (full-time, tenure)*  
CWI (Centrum Wiskunde & Informatica), Amsterdam, The Netherlands  
Leading a successful and productive team of

1 CWI Fellow, 3 tenured researchers, 1 tenure-track researcher, 1 scientific programmer, as well as several post-docs and PhD students.

Projects:

- MonetDB: The Open-source Columnar Database System — Query Processing at Light Speed
- TELEIOS: Virtual Observatory Infrastructure for Earth Observation Data (EU-FP7-ICT)
- COMMIT P19 - *TimeTrails*: Spatiotemporal Data Warehouses for Travellers (NL/FES)
- LEO: Linked Open Earth Observation Data for Precision Farming (EU-FP7-ICT)
- RETHINK big: Roadmap for European Technologies in Hardware and Networking for Big Data (EU-FP7-ICT)
- PROMIMOOC: Process Mining for Multi-objective Online Control (NWO Data Science program “Challenging Big Data”)
- DAMIOSO: Data Mining on High Volume Simulation Output (NWO program “Innovativ Public-Private Partnership in ICT (IPPSI)”); Co-PI)
- CIMPLO: Cross-Industry Predictive Maintenance Optimization Platform (NWO/TTW program “Smart Industry”); Co-PI)

1997 – 2010

*Database researcher* (senior/tenure since 2003)

Centrum Wiskunde & Informatica (CWI) in Amsterdam, The Netherlands

Database Group with Prof. Dr. M. L. Kersten

Projects:

- MonetDB: A Novel Main Memory Database Kernel — Query Processing at Light Speed
- CONQUER: Multi-Query Optimization for Data Mining Applications
- MIA: Multimedia Information Analysis
- MultimediaN: Multimedia is the Message
- BRICKS: Basic Research in Informatics for Creating the Knowledge Society

1995 – 1997

*Research assistant*

Humboldt-University Berlin, Germany, Institute for Informatics

Database Group with Prof. J.-C. Freytag, Ph.D.

Project:

- Query Evaluation and Optimization in Parallel Databases  
(funded by the German Research Foundation)

1994 – 1995

*Compulsory Military Service*

Computing Center of the German Air Force

System administration on Siemens mainframes (H90 & 7.580i) running BS 2000

1991 – 1994

*Student-assistant*

Technical University Clausthal, Germany, Institute for Informatics

Database Group with Prof. Dr. A. Heuer and

Data-management Group with Prof. Dr. D.P.F. Möller

Projects:

- Design and implementation of a data dictionary and a data definition language for the object-oriented database system OSCAR
- Design of a database schema for a medical information system
- Design and implementation of a data dictionary (meta-schema) for an object-oriented database system on top of ObjectStore

1988 – 1992

*Free-lance programmer*

Design, implementation, and administration of several dBase applications for a metalworking company

## Projects

2017 - 2021

CIMPLO: Cross-Industry Predictive Maintenance Optimization Platform  
(NWO/TTW program “Smart Industry”); Co-PI)

2016 - 2020

DAMIOSO: Data Mining on High Volume Simulation Output  
(NWO program “Innovativ Public-Private Partnership in ICT (IPPSI)”); Co-PI)

2014 - 2018	PROMIMOOC: Process Mining for Multi-objective Online Control (NWO Data Science program “Challenging Big Data”; Co-PI)
2014 - 2016	RETHINK big: Roadmap for European Technologies in Hardware and Networking for Big Data (EU-FP7-ICT CSA; Co-PI, working group leader)
2013 - 2015	LEO: Linked Open Earth Observation Data for Precision Farming (EU-FP7-ICT STREP; Co-PI, Quality Assurance Coordinator)
2011 - 2017	COMMIT P19 - <i>TimeTrails</i> : Spatiotemporal Data Warehouses for Travellers (NL/FES; work package leader)
2010 - 2013	TELEIOS: Virtual Observatory Infrastructure for Earth Observation Data (EU-FP7-ICT STREP; Quality Assurance Coordinator)

## Awards

2011	VLDB’2011 Challenges & Visions Track Best Paper Award [d.11,e.32]
2009	VLDB’2009 10-year Best Paper Award [d.8,e.27,e.7,h.14]

## PhD (co-)advisorship

2017-2021	Pedro Thiago Timbo Holanda (CWI & Leiden University)
2016-2020	Mark Raasveldt (CWI & Leiden University)
2011-2018	Minh Duc Pham (CWI & Vrije Universiteit Amsterdam)
2011-2017	Yagiz Kargin (CWI & University of Amsterdam)
2011-2017	Eleni Petraki (CWI & University of Amsterdam)
2011-2016	Mrunal Gawade (CWI & University of Amsterdam)
2011-2015	Thibault Sellam (CWI & University of Amsterdam)
2010-2014	Holger Pirk (CWI & University of Amsterdam)
2008-2013	Romulo Goncalves (CWI & University of Amsterdam)
2006-2012	Erietta Liarou (CWI & University of Amsterdam)
2005-2010	Stratos Idreos (CWI & University of Amsterdam) - <i>ACM SIGMOD Jim Gray Doctoral Dissertation Award (2011)</i> - <i>ERCIM Cor Baayen Award (2011)</i>
2004-2009	Fabian Groffen (CWI & University of Amsterdam)

## Professional Activities & Community Services

2019	<ul style="list-style-type: none"> <li>- Co-Founder &amp; Steering Committee member of International Workshop Series on Data Management on New Hardware (DaMoN; Sponsored by and colocated with ACM SIGMOD/PODS; since 2005)</li> <li>- General Chair of ACM SIGMOD/PODS 2019</li> <li>- Member of PVLDB Review Board (Research Track VLDB 2019)</li> <li>- Demonstration Program Committee member of EDBT 2019</li> <li>- Scientific Program Committee member of BTW 2019</li> <li>- Demonstration Program Committee member of BTW 2019</li> </ul>
2018	<ul style="list-style-type: none"> <li>- Lightning Talks Track Chair of ICDE 2018</li> <li>- Research Track Program Committee member of EDBT 2018</li> <li>- Demonstration Program Committee member of SIGMOD 2018</li> <li>- Program Committee member of DBTest 2018</li> <li>- Program Committee member of ADMS 2018</li> <li>- Member of Advisory Committee for TNO program “Making Sense of Big Data”</li> <li>- External PhD Examiner Steffen Zeuch, Humboldt University Berlin, Berlin, Germany</li> <li>- External PhD Examiner Bas van Stein, Leiden University, Leiden, The Netherlands</li> <li>- External PhD Examiner Hao Wang, Leiden University, Leiden, The Netherlands</li> </ul>
2017	<ul style="list-style-type: none"> <li>- Research Track Associate Editor of PVLDB/VLDB 2017</li> <li>- Member of PVLDB Review Board</li> </ul>

- Program Committee member of SIGMOD 2017
  - Demonstration Program Committee member of EDBT 2017
  - Demonstration Program Committee member of BTW 2017
  - Program Committee member of ADMS 2017
  - Member of Advisory Committee for TNO program “Making Sense of Big Data”
  - External PhD Examiner Ismail Oukid, Technical Dresden, Dresden, Germany
  - External PhD Examiner Yuanhao Guo, Leiden University, Leiden, The Netherlands
- 2016
- Demonstration Program Committee Chair of ICDE 2016
  - Member of PVLDB Review Board
  - Program Committee member of VLDB 2016
  - Program Committee member of ADMS 2016
  - Member of Advisory Committee for TNO program “Making Sense of Big Data”
  - Reviewer for FP-7 project AXLE for the European Commission
- 2015
- Member of PVLDB Review Board
  - Associate Editor “Novel DB Architectures” of PVLDB/VLDB 2015
  - Program Committee member of VLDB 2015 demonstrations track
  - Program Committee member of VLDB 2015 PhD workshop
  - Program Committee member of ICDE 2015
  - Program Committee member of EDBT 2015
  - Program Committee member of IC2E 2015
  - Program Committee member of ADMS 2015
  - Demonstration Program Committee member of BTW 2015
  - External PhD Examiner Enrique Larios Vargas, Leiden University, Leiden, The Netherlands
  - External PhD Examiner Florian Funke, Technical University Munich, Munich, Germany
  - Reviewer for FP-7 project AXLE for the European Commission
- 2014
- Member of PVLDB Review Board
  - Program Committee member of VLDB 2014
  - Program Committee member of SIGMOD 2014
  - Program Committee member of ICDE 2014
  - Program Committee member of EDBT 2014
  - Program Committee member of ADMS 2014
  - Program Committee member of IMDM 2014
  - Program Committee member of Terra Cognita 2014
  - Member of ICDE 2014 Panel “Main-Memory Database Systems”
  - External PhD Examiner Cagri Balkensen, ETH Zurich, Zurich, Switzerland
  - External PhD Examiner Kostis Kyzirakos, National and Kapodistrian University of Athens, Athens, Greece
  - Reviewer for FP-7 project AXLE for the European Commission
- 2013
- Member of PVLDB Review Board
  - Associate Editor “Experiments and Analysis Track” of PVLDB/VLDB 2013
  - Program Committee member of BTW 2013 (Scientific Program Track)
  - Demonstration Program Committee member of BTW 2013
  - Program Committee member of EDBT 2013
  - Program Committee member of IC2E 2013
  - Program Committee member of SMDB 2013
  - Program Committee member of BigData 2013
  - Program Committee member of ADMS 2013
  - Program Committee member of IMDM 2013
- 2012
- Member of ADMS 2012 Panel “Impact of the convergence of three worlds: High-Performance Computing, Databases, and Analytics”

- Guest editor for ECRIM News no. 89 special theme on “Big Data”
  - Program Committee member of VLDB 2012
  - Program Committee member of ADMS 2012
  - Program Committee member of ICDE 2012 (Track “Cloud, data warehousing, and large data”)
  - Program Committee member of SMDB 2012
  - Demonstration Program Committee member of EDBT 2012
  - Program Committee member of Terra Cognita 2012
  - Co-Organizer of EDBT 2012 Tutorial “Adaptive Indexing in Modern Databases”
- 2011
- Member of ADMS 2011 Panel “In the multi-core age, how do larger, faster, cheaper and more responsive memory sub-systems affect data management?”
  - Advisor for Repeatability & Workability Evaluation of SIGMOD 2011
  - Program Committee member of Terra Cognita 2011
  - Program Committee member of DBTest 2011
  - External PhD Examiner Gerard Marks, Dublin City University, Dublin, Ireland
  - External PhD Examiner Syed Saif ur Rahman, Otto-von-Guericke University, Magdeburg, Germany
- 2010
- Repeatability & Workability Evaluation Co-Chair of SIGMOD 2010
  - Program Committee member of SIGMOD 2010
  - Program Committee member of ICDE 2010 (Track “Systems, Experiments, Applications”)
  - Program Committee member of EDBT 2010
- 2009
- Repeatability & Workability Evaluation Co-Chair of SIGMOD 2009
  - Demonstration Program Committee Chair of EDBT 2009
  - Co-Organizer of EDBT 2009 Tutorial “Performance Evaluation in Database Research: Principles and Experience”
  - Program Committee member of VLDB 2009 E&A Track
  - Program Committee member of ICDE 2009 (Track “Transaction and workflow management, database architectures”)
  - Program Committee member of SMDB 2009
  - Program Committee member of BTW 2009
- 2008
- Co-Organizer of ICDE 2008 Seminar “Performance Evaluation in Database Research: Principles and Experience”
  - Experimental Repeatability Committee member of SIGMOD 2008
  - Program Committee member of EDBT 2008
  - Demonstration Program Committee member of ICDE 2008
  - Program Committee member of VLDB 2008 PhD Workshop
- 2007
- Co-Organizer of VLDB 2007 Panel “Performance Evaluation and Experimental Assessment — Conscience or Curse of Database Research?”
  - Co-Organizer of the Second International Workshop on Performance and Evaluation of Data Management Systems (ExpDB 2007; Sponsored by and colocated with ACM SIGMOD/PODS 2007)
  - Program Committee member of DASFAA 2007
  - Program Committee member of DEXA 2007
  - Program Committee member of BTW 2007
- 2006
- Co-Organizer of the Second International Workshop on Data Management on New Hardware (DaMoN 2006; Sponsored by and colocated with ACM SIGMOD/PODS 2006)
  - Demonstration Program Committee member of VLDB 2006
  - Program Committee member of EDBT 2006 PhD Workshop
  - Program Committee member of QLQP 2006 (EDBT Workshop)
  - Program Committee member of DASFAA 2006

- 2005 - Co-Organizer of the First International Workshop on Data Management on New Hardware (Da-MoN 2005; Sponsored by and colocated with ACM SIGMOD/PODS 2005)  
- Program Committee member of VLDB 2005 (Core Database Technology)
- 2004 - Program Committee member of SAC 2004 (Database track)
- since 2006 - Teaching course “Advanced Database Techniques” at the University of Amsterdam
- 2004 – 2009 - Teaching course “Database Techniques” at the University of Amsterdam
- since 2004 - Supervising Masters Students & PhD Students
- since 1996 - Reviewer for various journals, conferences and workshops, a.o.:  
EDBT, FGCS, ICDE, Information Systems, PODS, PVLDB, SAC, SIGMOD, TKDE, TODS,  
TOIS, VLDB, VLDB Journal

## Research Interests

- Exploratory Big Data Analytics
- Column-store Database Architectures & Technologies
- Data Management for Sciences
- Analytical Database Systems
- Parallel & Distributed Information Systems
- Cost Models for Database Query Optimization
- XML storage & XQuery processing using RDBMS technology
- Hardware-aware Database Technology
- Processor Architectures & Hierarchical Cache Memories
- Optimization, Scalability, Performance, & Benchmarking
- Multi-Architecture/Cross-Platform Software-Development & -Testing

## Technical Skills

General skills in computer science. Specific expertise in:

- Software development, release management, performance analysis & monitoring, regression testing, and quality assurance for open-source database management system MonetDB (<http://www.monetdb.org/>)
- Computing platforms: several UNIX variants, with a focus on Linux, and some Windows experience.
- Cross-platform software development: Linux (on AMD, Intel & StrongARM), Solaris, IRIX, AIX, MacOS X, CygWin, Windows
- System administration: cluster of Linux PCs, Siemens mainframes (H90 & 7.580i) running BS 2000
- Programming languages: fluent in C, C++, Pascal, Basic, SQL, dBase, Python, (ba)sh; some experience in Perl, prolog, assembly, Java
- Parallel programming experience in C/C++ using PVM and MPI on a cluster of Sun workstations and on a CRAY T3E

## Languages

German (native), English (fluent), Dutch (fluent), French (basic)

## Publications

### a. Proceedings (edited)

- [a.04] M. L. Kersten and B. Novikov and J. Teubner and V. Polutin and **S. Manegold**, editor. *12th International Conference on Extending Database Technology (EDBT 2009)*, Saint Petersburg, Russia, March 2009.
- [a.03] P. Bonnet and **S. Manegold**, editor. *Second International ACM/SIGMOD Workshop on Performance and Evaluation of Data Management Systems (ExpDB 2007)*, Beijing, China, June 2007.
- [a.02] A. Ailamaki and P. A. Boncz and **S. Manegold**, editor. *Second International ACM/SIGMOD Workshop on Data Management on New Hardware (DaMoN 2006)*, Chicago, IL, USA, June 2006.
- [a.01] A. Ailamaki and P. A. Boncz and **S. Manegold**, editor. *First International ACM/SIGMOD Workshop on Data Management on New Hardware (DaMoN 2005)*, Baltimore, MD, USA, June 2005.

### b. Theses

- [b.02] **S. Manegold**. *Understanding, Modeling, and Improving Main-Memory Database Performance*. PhD thesis, Universiteit van Amsterdam, Amsterdam, The Netherlands, December 2002.
- [b.01] **S. Manegold**. Extending Nested Transactions for the OSCAR-Project. Master's thesis, Technische Universität Clausthal, Institut für Informatik, Clausthal-Zellerfeld, Germany, September 1994. *In German*.

### c. Book Chapters

- [c.06] **S. Manegold**. Cost Estimation. In L. Liu and M. T. Özsu, editors, *Encyclopedia of Database Systems*, pages 506–511. Springer-Verlag, Heidelberg, Germany, October 2009.
- [c.05] **S. Manegold**. Memory Hierarchy. In L. Liu and M. T. Özsu, editors, *Encyclopedia of Database Systems*, pages 1707–1713. Springer-Verlag, Heidelberg, Germany, October 2009.
- [c.04] **S. Manegold**. Locality. In L. Liu and M. T. Özsu, editors, *Encyclopedia of Database Systems*, pages 1713–1714. Springer-Verlag, Heidelberg, Germany, October 2009.
- [c.03] A. R. Schmidt, **S. Manegold**, and M. L. Kersten. Storing XML Documents in Databases. In L. C. Rivero, J. H. Doorn, and V. E. Ferragine, editors, *Encyclopedia of Database Technologies and Applications*, pages 658–664. Idea Group Publishing, August 2005.
- [c.02] A. R. Schmidt, F. Waas, **S. Manegold**, and M. L. Kersten. A Look Back on the XML Benchmark Project. In H. M. Blanken, T. Grabs, H.-J. Schek, R. Schenkel, and G. Weikum, editors, *Intelligent Search on XML*, volume 2818 of *Lecture Notes in Computer Science*, chapter 18, pages 263–278. Springer-Verlag, Berlin, New York, etc., August 2003.
- [c.01] **S. Manegold** and F. Waas. Integrating I/O processing and Transparent Parallelism — Toward Comprehensive Query Execution in Parallel Database Systems. In A. Dogaç, M. T. Özsu, and Ö. Ulusoy, editors, *Current Trends in Data Management Technology*, chapter 8, pages 130–152. Idea Group Publishing, Hershey, PA, USA, January 1999.

### d. Journals

- [d.29] K. Kyzirakos, D. Savva, I. Vlachopoulos, A. Vasileiou, N. Karalis, M. Koubarakis, and **S. Manegold**. GeoTriples: Transforming geospatial data into RDF graphs using R2RML and RML mappings. *Journal of Web Semantics*, September 2018.
- [d.28] M. Koubarakis, K. Kyzirakos, C. Nikolaou, G. Garbis, K. Bereta, R. Dogani, S. Giannakopoulou, P. Smeros, D. Savva, G. Stamoulis, G. Vlachopoulos, **S. Manegold**, C. Kontoes, T. Herekakis, I. Papoutsis, and D. Michail. Managing Big, Linked, and Open Earth-Observation Data: Using the TELEIOS/LEO software stack. *IEEE Geoscience and Remote Sensing Magazine*, 4(3):23–37, September 2016.
- [d.27] R. Cijvat, **S. Manegold**, M. L. Kersten, G. W. Klau, A. Schönhuth, T. Marschall, and Y. Zhang. Genome Sequence Analysis with MonetDB: A Case Study on Ebola Virus Diversity. *Datenbank-Spektrum*, 15(3):185–191, November 2015. *Best Workshop Papers of BTW 2015*.
- [d.26] **S. Manegold**. Front Matter: Letter from the Guest Editors. *Proceedings of the VLDB Endowment (PVLDB)*, 8(7):8, March 2015.

- [d.25] G. Graefe, F. Halim, S. Idreos, H. Kuno, **S. Manegold**, and B. Seeger. Transactional Support for Adaptive Indexing. *The VLDB Journal*, 23(2):303–328, April 2014. *Special Issue: Best papers of VLDB 2012*.
- [d.24] K. Kyzirakos, **S. Manegold**, C. Nikolaou, and M. Koubarakis. Revolutionary Database Technology for Data Intensive Research. *ERCIM News*, 2014(96), January 2014. *Special Theme on Linked Open Data*.
- [d.23] Y. Kargin, M. Ivanova, Y. Zhang, **S. Manegold**, and M. L. Kersten. Lazy ETL in Action: ETL Technology Dates Scientific Data. *Proceedings of the VLDB Endowment (PVLDB)*, 12(9):1286–1289, August 2013.
- [d.22] M. Heimel, M. Saecker, H. Pirk, **S. Manegold**, and V. Markl. Hardware-Oblivious Parallelism for In-Memory Column-Stores. *Proceedings of the VLDB Endowment (PVLDB)*, 6(9):709–720, July 2013.
- [d.21] S. Amer-Yahia and **S. Manegold**. Front Matter: Letter from the Guest Editors. *Proceedings of the VLDB Endowment (PVLDB)*, 6(8):10, June 2013.
- [d.20] M. Ivanova, M. L. Kersten, **S. Manegold**, and Y. Kargin. Data Vaults: Database Technology for Scientific File Repositories. *Computing in Science and Engineering (CiSE)*, 15(3):32–42, May 2013.
- [d.19] E. Liarou, S. Idreos, **S. Manegold**, and M. L. Kersten. MonetDB/DataCell: Online Analytics in a Streaming Column-Store. *Proceedings of the VLDB Endowment (PVLDB)*, 5(12):1910–1913, August 2012.
- [d.18] M. Koubarakis, K. Kyzirakos, M. Karpathiotakis, C. Nikolaou, S. Vassos, G. Garbis, M. Sioutis, K. Bereta, D. Michail, C. Kontoes, I. Papoutsis, T. Herekakis, **S. Manegold**, M. L. Kersten, M. Ivanova, H. Pirk, Y. Zhang, M. Datcu, G. Schwarz, C. Dumitru, D. Espinoza-Molina, K. Molch, U. Di Giammatteo, M. Sagona, S. Perelli, T. Reitz, E. Klien, and R. Gregor. TELEIOS: A Database-Powered Virtual Earth Observatory. *Proceedings of the VLDB Endowment (PVLDB)*, 5(12):2010–2013, August 2012.
- [d.17] C. Thanos, **S. Manegold**, and M. L. Kersten. Big Data - Introduction to the special theme. *ERCIM News*, 2012(89):10–11, April 2012. *Special Theme on Big Data*.
- [d.16] M. L. Kersten and **S. Manegold**. Revolutionary Database Technology for Data Intensive Research. *ERCIM News*, 2012(89):16, April 2012. *Special Theme on Big Data*.
- [d.15] S. Idreos, F. Groffen, N. Nes, **S. Manegold**, K. S. Mullender, and M. L. Kersten. MonetDB: Two Decades of Research on Column-oriented Database Architectures. *IEEE Data Engineering Bulletin*, 35(1):40–45, March 2012. *Special Issue on Column Store Systems*.
- [d.14] G. Graefe, F. Halim, S. Idreos, H. Kuno, and **S. Manegold**. Concurrency Control for Adaptive Indexing. *Proceedings of the VLDB Endowment (PVLDB)*, 5(7):656–667, March 2012.
- [d.13] M. L. Kersten, **S. Manegold**, and K. S. Mullender. The Database Architectures Research Group at CWI. *ACM SIGMOD Record*, 40(4):39–44, December 2011.
- [d.12] P. Bonnet, **S. Manegold**, M. Bjorling, W. Cao, J. Gonzales, J. Granados, N. Hall, S. Idreos, M. Ivanova, R. Johnson, D. Koop, T. Kraska, R. Müller, D. Olteanu, P. Papotti, C. Reilly, D. Tsirogiannis, C. Yu, J. Freire, and D. Shasha. Repeatability & Workability Evaluation of SIGMOD 2011. *ACM SIGMOD Record*, 40(2):45–48, June 2011.
- [d.11] M. L. Kersten, S. Idreos, **S. Manegold**, and E. Liarou. The Researcher’s Guide to the Data Deluge: Querying a Scientific Database in Just a Few Seconds. *Proceedings of the VLDB Endowment (PVLDB)*, 4(12):1474–1477, August 2011. *Challenges & Visions Track Best Paper Award*.
- [d.10] S. Idreos, **S. Manegold**, H. Kuno, and G. Graefe. Merging What’s Cracked, Cracking What’s Merged: Adaptive Indexing in Main-Memory Column-Stores. *Proceedings of the VLDB Endowment (PVLDB)*, 4(9):585–597, June 2011.
- [d.09] **S. Manegold**, I. Manolescu, L. Afanasiev, J. Feng, G. Gou, M. Hadjieleftheriou, S. Harizopoulos, P. Kalnis, K. Karanasos, D. Laurent, M. Lupu, N. Onose, C. Re, V. Sans, P. Senellart, T. Wu, and D. Shasha. Repeatability & Workability Evaluation of SIGMOD 2009. *ACM SIGMOD Record*, 38(3):40–43, September 2009.
- [d.08] **S. Manegold**, M. L. Kersten, and P. A. Boncz. Database Architecture Evolution: Mammals Flourished long before Dinosaurs became Extinct. *Proceedings of the VLDB Endowment (PVLDB)*, 2(2):1648–1653, August 2009. *10-year Best Paper Award paper for [e.7]*.
- [d.07] P. A. Boncz, M. L. Kersten, and **S. Manegold**. Breaking the Memory Wall in MonetDB. *Communications of the ACM (CACM)*, 51(12):77–85, December 2008. In “Research Highlights”.



- [d.06] L. Sidirourgos, R. Goncalves, M. L. Kersten, N. Nes, and **S. Manegold**. Column-Store Support for RDF Data Management: not all swans are white. *Proceedings of the VLDB Endowment (PVLDB)*, 1(2):1553–1563, August 2008.
- [d.05] I. Manolescu, L. Afanasiev, A. Arion, J.-P. Dittrich, **S. Manegold**, N. Polyzotis, K. Schnaitter, P. Senellart, S. Zoupanos, and D. Shasha. The repeatability experiment of SIGMOD 2008. *ACM SIGMOD Record*, 37(1):39–45, March 2008.
- [d.04] **S. Manegold**. An Empirical Evaluation of XQuery Processors. *Information Systems*, 33(2):203–220, April 2008. *Updated and extended version of [e.19]*.
- [d.03] A. Ailamaki, P. A. Boncz, and **S. Manegold**. Report on the Second International Workshop on Data Management on Modern Hardware (DaMoN’06). *ACM SIGMOD Record*, 35(4):46–47, December 2006.
- [d.02] **S. Manegold**, P. A. Boncz, and M. L. Kersten. Optimizing Main-Memory Join On Modern Hardware. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 14(4):709–730, July 2002.
- [d.01] **S. Manegold**, P. A. Boncz, and M. L. Kersten. Optimizing Database Architecture for the New Bottleneck: Memory Access. *The VLDB Journal*, 9(3):231–246, December 2000.

## e. Conferences & Workshops

- [e.59] P. Holanda, M. Nerone, E. Cunha de Almeida, and **S. Manegold**. Cracking KD-Tree: The First Multidimensional Adaptive Indexing. In *Proceedings of the International Conference on Data Science, Technology and Applications (DATA)*, pages 393–399, Porto, Portugal, July 2018.
- [e.58] M. Raasveldt, P. Holanda, H. Mühleisen, and **S. Manegold**. Deep Integration of Machine Learning Into Column Stores. In *Proceedings of the International Conference on Extending Database Technology (EDBT)*, pages 473–476, Vienna, Austria, March 2018.
- [e.57] E. Petraki, S. Idreos, and **S. Manegold**. Holistic Indexing in Main-memory Column-stores. In *Proceedings of the ACM SIGMOD International Conference on Management of Data (SIGMOD)*, Melbourne, Australia, June 2015.
- [e.56] Y. Kargin, M. L. Kersten, **S. Manegold**, and H. Pirk. The DBMS your Big Data Sommelier. In *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, Seoul, Korea, April 2015.
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- [e.23] L. Sidirourgos, R. Goncalves, M. L. Kersten, N. Nes, and **S. Manegold**. Column-Store Support for RDF Data Management: not all swans are white. In *Proceedings of the International Conference on Very Large Data Bases (VLDB)*, pages 1553–1563, Auckland, New Zealand, September 2008.
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- [e.04] **S. Manegold** and F. Waas. Thinking Big in a Small World — Efficient Query Execution on Small-scale SMPs. In Jonathan Schaeffer, editor, *Proceedings of the International Symposium on High Performance Computing Systems and Applications (HPCS)*, chapter 14, pages 133–146. Kluwer Academic Publishers, Edmonton, AL, Canada, May 1998.
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## f. Technical Reports

- [f.17] **S. Manegold**. An Empirical Evaluation of XQuery Processors. Technical Report INS-E0704, CWI, Amsterdam, The Netherlands, March 2006. *Updated and extended version of [e.19]*.
- [f.16] F. Groffen, M. L. Kersten, and **S. Manegold**. Armada: A Reference Model for an Evolving Database System. Technical Report INS-E0603, CWI, Amsterdam, The Netherlands, May 2006.
- [f.15] P. A. Boncz, T. Grust, M. van Keulen, **S. Manegold**, J. Rittinger, and J. Teubner. Loop-lifted Staircase Join: from XPath to XQuery. Technical Report INS-E0510, CWI, Amsterdam, The Netherlands, May 2005.
- [f.14] P. A. Boncz, **S. Manegold**, and J. Rittinger. Updating the Pre/Post Plane in MonetDB/XQuery. Technical Report INS-E0506, CWI, Amsterdam, The Netherlands, April 2005.
- [f.13] P. A. Boncz, T. Grust, **S. Manegold**, J. Rittinger, and J. Teubner. Pathfinder: Relational XQuery Over Multi-Gigabyte XML Inputs In Interactive Time. Technical Report INS-E0503, CWI, Amsterdam, The Netherlands, March 2005.
- [f.12] M. L. Kersten and **S. Manegold**. Cracking the database store. Technical Report INS-E0408, CWI, Amsterdam, The Netherlands, September 2004.
- [f.11] **S. Manegold**, P. A. Boncz, N. Nes, and M. L. Kersten. Cache-Conscious Radix-Declasser Projections. Technical Report INS-E0406, CWI, Amsterdam, The Netherlands, June 2004.
- [f.10] **S. Manegold**, P. A. Boncz, and M. L. Kersten. Generic Database Cost Models for Hierarchical Memory Systems. Technical Report INS-R0203, CWI, Amsterdam, The Netherlands, March 2002.
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- [f.08] **S. Manegold**, P. A. Boncz, and M. L. Kersten. Optimizing Main-Memory Join On Modern Hardware. Technical Report INS-R9912, CWI, Amsterdam, The Netherlands, October 1999.
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- [f.06] **S. Manegold** and J. K. Obermaier. Efficient Resource Utilization in Shared-Everything Environments. Technical Report INS-R9711, CWI, Amsterdam, The Netherlands, December 1997.
- [f.05] **S. Manegold**, J. K. Obermaier, and F. Waas. Flexible Query Optimization in Parallel Database Systems (Working Paper). Technical Report HUB-IB-80, Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, February 1997. *In German*.
- [f.04] **S. Manegold**, J. K. Obermaier, and F. Waas. Load Balanced Query Evaluation in Shared-Everything Environments (Extended Version). Technical Report HUB-IB-70, Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, September 1996.
- [f.03] **S. Manegold**, J. K. Obermaier, F. Waas, and J.-C. Freytag. Load Balanced Query Evaluation in Shared-Everything Environments. Technical Report HUB-IB-61, Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, June 1996.
- [f.02] **S. Manegold**, J. K. Obermaier, F. Waas, and J.-C. Freytag. Data Threaded Query Evaluation in Shared-Everything Environments. Technical Report HUB-IB-58, Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, April 1996.
- [f.01] **S. Manegold**, C. Hörner, and A. Heuer. A Look Back on IRIS — Final Report of a Database Research Project. Technical Report Informatik-Bericht 93/7, Technische Universität Clausthal, Institut für Informatik, Clausthal-Zellerfeld, Germany, July 1993. *In German*.

## Tutorials, Seminars, Panels, Presentations, Lectures, Courses, in the Media

### g. Tutorials, Seminars, & Panels

- [g.06] K. Bereta, M. Koubarakis, **S. Manegold**, G. Stamoulis, and B. Demir. From Big Data to Big Information and Big Knowledge: The Case of Earth Observation Data. In *International Conference on Information and Knowledge Management (CIKM)*, Turin, Italy, October 2018. *Seminar/Tutorial*.

- [g.05] K. Bereta, M. Koubarakis, **S. Manegold**, C. Nikolaou, and G. Stamoulis. A Data Science Pipeline for Linked Earth Observation Data. In *Hellenic Data Management Symposium (HDMS)*, Larnaca, Cyprus, July 2018. *Seminar/Tutorial*.
- [g.04] S. Idreos, **S. Manegold**, and G. Graefe. Adaptive Indexing in Modern Database Kernels. In *Proceedings of the International Conference on Extending Database Technology (EDBT)*, pages 566–569, Berlin, Germany, March 2012. *Seminar/Tutorial*.
- [g.03] **S. Manegold** and I. Manolescu. Performance Evaluation in Database Research: Principles and Experience. In *Proceedings of the International Conference on Extending Database Technology (EDBT)*, page 1156, St. Petersburg, Russia, March 2009. *Seminar/Tutorial*.
- [g.02] I. Manolescu and **S. Manegold**. Performance Evaluation in Database Research: Principles and Experience. In *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, Cancun, Mexico, April 2008. *Seminar/Tutorial*.
- [g.01] I. Manolescu and **S. Manegold**. Performance Evaluation and Experimental Assessment — Conscience or Curse of Database Research? In *Proceedings of the International Conference on Very Large Data Bases (VLDB)*, pages 1441–1442, Vienna, Austria, September 2007. *Panel*.

## **h. Invited Presentations & Lectures**

- [h.41] **S. Manegold**. *Progressive Indices: Adaptive Indexing Without Prejudice*. Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, April 2018. *Invited Talk*.
- [h.40] **S. Manegold**. *Data Streams and Low Latency Processing*. InfoStrada / Gracernote, Nieuwegein, The Netherlands, December 2016. *Invited Talk*.
- [h.39] **S. Manegold**. *Data Management for Data Science*. InfoStrada / Gracernote, Nieuwegein, The Netherlands, December 2016. *Invited Talk*.
- [h.38] **S. Manegold**. *MonetDB: Open-source Columnar Database Technology Beyond Textbooks*. Universität Rostock, Institut für Informatik, Rostock, Germany, December 2014. *Invited Talk*.
- [h.37] **S. Manegold**. *Performance Evaluation in Database Research: Principles and Experiences*. Universität Rostock, Institut für Informatik, Rostock, Germany, December 2014. *Invited Talk*.
- [h.36] **S. Manegold**. *Data Management for Data Science*. Universität Rostock, Institut für Informatik, Rostock, Germany, December 2014. *Invited Talk*.
- [h.35] **S. Manegold**. *Data Management for Data Science*. De Leidsche Flesch, Studievereniging voor Natuurkunde, Sterrenkunde, Wiskunde & Informatica, Universiteit Leiden, Leiden, The Netherlands, September 2014. *Invited Talk*.
- [h.34] **S. Manegold**. *Data Management for Data Science*. Leiden University, Faculty of Science, Leiden, The Netherlands, September 2014. *Invited Talk*.
- [h.33] **S. Manegold**. *Main-Memory Database Systems*. IEEE International Conference on Data Engineering (ICDE), Chicago, IL, USA, April 2014. *Invited panellist*.
- [h.32] **S. Manegold** and H. Pirk. *Hardware-Conscious Cost Modelling through the Ages*. ETH Zurich, Systems Group, Zurich, Switzerland, September 2013. *Invited Talk*.
- [h.31] **S. Manegold** and H. Mühleisen. *MonetDB: Open-source Columnar Database Technology for Data Analytics*. INRIA Unité de Recherche Saclay - Île-de-France, AVIZ Lab., Orsay Cedex, France, June 2013. *Invited Talk*.
- [h.30] **S. Manegold**. *MonetDB: Open-source Columnar Database Technology Beyond Textbooks*. Universiteit Leiden, Leiden Institute of Advanced Computer Science (LIACS), Leiden, The Netherlands, February 2013. *Invited Talk*.
- [h.29] **S. Manegold**. *Towards Exploratory Data Analysis*. EIT ICT Labs Workshop Big Data, Eindhoven, The Netherlands, December 2012. *Invited Talk*.
- [h.28] **S. Manegold**. *Impact of the convergence of three worlds: High-Performance Computing, Databases, and Analytics*. International Workshop on Accelerating Data Management Systems Using Modern Processor and Storage Architectures (ADMS), Istanbul, Turkey, August 2012. *Invited panellist*.

- [h.27] **S. Manegold.** *Data Intensive Research and Explorative Data Analysis.* Internation Workshop on Big Data Benchmarking (WBDB), San Jose, CA, USA, May 2012. *Invited Talk.*
- [h.26] **S. Manegold.** *Explorative Data Analysis for Data-intensive Research - Not just a Scalability Challenge?* Herbsttreffen der GI-Fachgruppe Datenbanksysteme, Hasso-Plattner-Institut, Potsdam, Germany, November 2011. *Invited Talk.* In German.<http://www.tele-task.de/archive/lecture/overview/6032/>.
- [h.25] **S. Manegold.** *In the multi-core age, how do larger, faster, cheaper and more responsive memory sub-systems affect data management?* International Workshop on Accelerating Data Management Systems Using Modern Processor and Storage Architectures (ADMS), Seattle, WA, USA, September 2011. *Invited panellist.*
- [h.24] **S. Manegold.** *Merging What's Cracked, Cracking What's Merged: Adaptive Indexing in Main-Memory Column-Stores.* Technische Universität Dresden, Fakultät für Informatik, Dresden, Germany, September 2011. *Invited Talk.*
- [h.23] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology Beyond Textbooks.* Otto-von-Guericke-Universität Magdeburg, Fakultät für Informatik, Magdeburg, Germany, September 2011. *Invited Talk.*
- [h.22] **S. Manegold.** *The Data Cyclotron Query Processing Scheme.* Technische Universität Ilmenau, Fakultät für Informatik und Automatisierung, Ilmenau, Germany, May 2011. *Invited Talk.*
- [h.21] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology Beyond Textbooks.* Technische Universität Dortmund, Fakultät für Informatik, Dortmund, Germany, February 2011. *Invited Talk.*
- [h.20] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology Beyond Textbooks.* Technische Universität Ilmenau, Fakultät für Informatik und Automatisierung, Ilmenau, Germany, May 2011. *Invited Talk.*
- [h.19] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology Beyond Textbooks.* Technische Universität München, Institut für Informatik, München, Germany, January 2011. *Invited Talk.*
- [h.18] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology in Research and Practice.* HP Labs, Palo Alto, CA, USA, January 2011. *Invited Talk.*
- [h.17] **S. Manegold.** *MonetDB: Open-source Columnar Database Technology in Research and Practice.* IBM Research - Almaden, San Jose, CA, USA, January 2011. *Invited Talk.*
- [h.16] **S. Manegold.** *Performance Evaluation in Database Research: Principles and Experience.* Technische Universität Berlin, Institut für Softwaretechnik und Theoretische Informatik, Berlin, Germany, January 2010. *Invited Talk.*
- [h.15] **S. Manegold.** *MonetDB: Open-source Database Technology Beyond Textbooks.* Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, January 2010. *Invited Talk.*
- [h.14] **S. Manegold,** M. L. Kersten, and P. A. Boncz. *Database Architecture Evolution: Mammals Flourished long before Dinosaurs became Extinct.* International Conference on Very Large Data Bases (VLDB), Lyon, France, September 2009. *10-year Best Paper Award Keynote.*
- [h.13] **S. Manegold.** *High-performance Database Technology beyond Textbooks — Forget (almost) everything you were taught at school/university.* Hochschule Heilbronn, Fakultät für Informatik, Heilbronn, Germany, January 2008. *Invited Talk.*
- [h.12] **S. Manegold.** *MonetDB/XQuery: A High-performance XQuery Processor Powered by a Relational Engine.* Renmin University of China, School of Information, Department of Computer Science and Technology, Beijing, China, June 2007. *Invited Talk.*
- [h.11] **S. Manegold.** *The MonetDB Database Kernel: Architecture & Insights.* Renmin University of China, School of Information, Department of Computer Science and Technology, Beijing, China, June 2007. *Invited Talk.*
- [h.10] P. A. Boncz, T. Grust, M. van Keulen, **S. Manegold,** J. Rittinger, and J. Teubner. *Pathfinder: XQuery—The Relational Way.* IEEE International Conference on Multimedia & Expo (ICME), Amsterdam, The Netherlands, July 2005. *Poster & Demo.*
- [h.09] **S. Manegold.** *Releasing MonetDB/XQuery — Technology Preview 1.* Holland Open Software Conference, Amsterdam, The Netherlands, May 2005. *Invited Talk.*
- [h.08] **S. Manegold.** *High-Performance Database Technology made in Holland.* University of Massachusetts Amherst, Department of Computer Science, Knowledge Discovery Laboratory, Amherst, MA, USA, August 2004. *Invited Talk.*

- [h.07] **S. Manegold**. *High-Performance Database Technology for Hierarchical Memory Systems*. Free University of Bozen-Bolzano, Faculty of Computer Science, Bolzano/Bozen, Italy, June 2004. *Invited Talk*.
- [h.06] **S. Manegold**. *The Impact of Modern Hardware Developments on Database Performance – or – The (Fairy) Tale of “Random Access” Memory*. SAP AG, T-REX Group, Walldorf, Germany, May 2004. *Invited Talk*.
- [h.05] **S. Manegold**. *Database Research at CWI*. SAP AG, T-REX Group, Walldorf, Germany, April 2004. *Invited Talk*.
- [h.04] **S. Manegold**. *The Impact of Modern Hardware Developments on Database Performance – or – The (Fairy) Tale of “Random Access” Memory*. University of Konstanz, Department of Computer & Information Science, Konstanz, Germany, August 2003. *Invited Talk*.
- [h.03] **S. Manegold**. *The Impact of Modern Hardware Developments on Database Performance – or – The (Fairy) Tale of “Random Access” Memory*. Aalborg University, Department of Computer Science, Aalborg, Denmark, July 2003. *Invited Talk*.
- [h.02] **S. Manegold**. *A Generic Cost Model for Parallel Database Systems*. CWI, Amsterdam, The Netherlands, August 1997. *Invited Talk*.
- [h.01] **S. Manegold**. *Nested Transactions in Objectbases*. Humboldt-Universität zu Berlin, Institut für Informatik, Berlin, Germany, October 1995. *Invited Talk*.

## **i. Courses**

- [i.04] **S. Manegold** and E. Bakker. *Databases & Data Mining*. Leiden University, Leiden, The Netherlands, autumn 2016–. *Course (Master CS)*.
- [i.03] **S. Manegold**. *Information Systems for Big Data*. Amsterdam Business School, Universiteit van Amsterdam, Amsterdam, The Netherlands, spring 2016–2017. *Course (MBA & MSc “Big Data & Business Analytics”)*.
- [i.02] **S. Manegold** and M. L. Kersten. *Advanced Database Techniques*. Universiteit van Amsterdam, Amsterdam, The Netherlands, autumn 2006–2011. *Course (Master CS)*.
- [i.01] P. A. Boncz, **S. Manegold**, and M. L. Kersten. *Database Techniques*. Universiteit van Amsterdam, Amsterdam, The Netherlands, spring 2004–2010. *Course (Bachelor CS)*.

## **j. In the Media**

- [j.02] **S. Manegold**. *Als je data opslaat op een harde schijf, wordt die dan ook zwaarder? - Hoeveel wegen eentjes en nulletjes? Hoe?Zo!* Radio, June 2010. *Kettingvraag. In Dutch*.<http://www.cwi.nl/intranet/stefan-manegold-in-hoezo-radio>.
- [j.01] P. A. Boncz, M. L. Kersten, and **S. Manegold**. *Oogstjaar voor CWI-onderzoekers 'We investeren bewust in technologie'*. IPN - ICT-onderzoek Platform Nederland, I/O Magazine, June 2010. *Interview by Daphne Riksen. In Dutch*.[http://www.ictonderzoek.net/3/assets/File/Archief%20Magazine/IO\\_2010\\_juni.pdf](http://www.ictonderzoek.net/3/assets/File/Archief%20Magazine/IO_2010_juni.pdf).