

CURRICULUM VITAE

Dr. Håkan Sundell

Personal Information

Personal Data: Born in 1968, Male, Married and children.

Education

Ph.D.: **Exam:** 2004. **Subject:** Computing Science. **Title:** Efficient and Practical Non-Blocking Data Structures. **Supervisor:** Philippas Tsigas. **School:** Computing Science, Chalmers University of Technology, Sweden.

Master of Science:

Exam: 1996. **Subject:** Computing Science. **Title:** Correct emulation of microcomputer C64 in system-independent software. **School:** Computing Science, Göteborg University, Sweden.

Engineer:

Exam: 1989. **Subject:** Electronics and Telecommunication. **School:** Älvkullens gymnasium (upper secondary school of technology, 4 years), Sweden.

Distinctions

Awards:

Best paper award: IEEE and ACM 17th International Parallel and Distributed Processing Symposium (IPDPS 2003).

Prices:

Price of SEK 5000 for supervising master thesis winning Eterra Prize 2001.
Price of SEK 1750 for achieving exceptionally good study results in 1989.

Teaching Experience

Course Responsible:

“**Distributed Systems Advanced**”, 1 period, 30% duty, 2005.

“**Operating Systems**”, 1 period, 80% duty, 2005.

“**Computer Communication**”, 1 period, 90% duty, 2005.

“**Intensive Graduate (Ph.D.) Course in Concurrent Data Structures**”, 1 week, 90% duty, 2004.

“**Low-level Programming**”, 1 period, 100% duty, 2003.

“**Low-level Programming**”, 1 period, 100% duty, 2002.

“**Low-level Programming**”, 1 period, 100% duty, 2001.

“**Low-level Programming**”, 1 period, 100% duty, 2000.

“Low-level Programming”, 1 period, 100% duty, 1999

Supervising Experience

Master thesis projects:

1. “Development and porting of the Software Lab Simulator”, M. Johansson, 2000.
2. “Sweetpee - visual programming for nautical automation”, N. Karamzadeh, M. Reftel, 2000.
3. “Integrating CORBA functionality within an existing COM architecture”, P. Claesson, 2000.
4. “Voice over IP: The communication media of the 21st century”, L. Mathiasson, K. Mälarberg, 2000.
5. “Com under UNIX”, R. Berrio, M. Lubian, 2000.
6. “An Analysis Tool for a Real-time System for Radio Communication”, H. Lundqvist, P. Sandvall, 2001.
7. “Winflex Plantmaker: Software for configuration of controlling equipment”, O. Zandren, 2002.
8. “Program Context Recovering on Mobitex I/O Boards, Analysis and Implementation”, A. and C. Gingsjö, 2002.
9. “Sångsyntes för musikaliska ändamål på DSP-plattform”, H. Sallander, 2002.
10. “Tuning Intel x86 Executables”, H. Johansson, 2002.
11. “PyStarter: En genväg till programmering”, T. Gahnström, 2002.
12. “Dela din musik!”, M. Jingryd, 2002.
13. “Migrate from Modula-2 to C in a Embedded System”, P. Claesson, 2003.
14. “Platform Independent Computer Simulator (ARMputer)”, F. Kamrani, A. Javanshir, P. Serri, 2003.
15. “A Debugger with GUI in OS X”, I. Krizsan, 2003.
16. “Implementation of a Distributed Shared Memory using MPI”, P. Simonsson, 2003.
17. “Implementation and Optimization of a Multi Conjugate Adaptive Optics Software System for Vision Research”, D. Landell, 2005.

Project courses:

- “Personalised Electronic News System”, 7p/1 year, 5 students, 50% duty.
“Softradio”, 7p/1 year, 5 students, 100% duty.

Publications for Håkan Sundell

Referee-reviewed journal articles:

- [SunT05] H. Sundell and P. Tsigas. **Fast and Lock-Free Concurrent Priority Queues for Multi-Thread Systems**. Journal of Parallel and Distributed Computing, vol. 65, no. 5, pp. 609-627, Elsevier, 2005.

Referee-reviewed conference proceedings:

- [AHE+99] B. Allvin, H. Hansson, A. Ermedahl, M. Papatriantafilou, H. Sundell and P. Tsigas. **Evaluating the Performance of Wait-Free Snapshots in Real-Time Systems**. Proceedings of SNART'99 Real-Time Systems Conference. Aug. 1999. pp. 196-207.
- [SunTZ00] H. Sundell, P. Tsigas and Y. Zhang. **Simple and Fast Wait-Free Snapshots for Real-Time Systems**. Proceedings of the 4th International Conference on Principles of Distributed Computing (OPODIS 2000). ser. Studia Informatica Universalis. Dec. 2000. pp. 91-106.
- [SunT00] H. Sundell and P. Tsigas. **Space Efficient Wait-Free Buffer Sharing in Multiprocessor Real-Time Systems Based on Timing Information**.

Proceedings of the 7th International Conference on Real-Time Computing Systems and Applications (RTCSA 2000). IEEE press. Dec. 2000. pp. 433-440.

- [SunT02] H. Sundell and P. Tsigas. **NOBLE: A Non-Blocking Inter-Process Communication Library**. Proceedings of the 6th Workshop on Languages, Compilers and Run-time Systems for Scalable Computers (LCR 02). Mar. 2002.
- [SunT03] H. Sundell and P. Tsigas. **Fast and Lock-Free Concurrent Priority Queues for Multi-Thread Systems**. Proceedings of the 17th International Parallel and Distributed Processing Symposium (IPDPS 03). IEEE press. Apr. 2003. p. 11. Rewarded with the Best Paper Award in the Algorithms category.
- [SunT04a] H. Sundell and P. Tsigas. **Scalable and Lock-Free Concurrent Dictionaries**. Proceedings of the 19th Annual ACM Symposium on Applied Computing (SAC2004). Mar. 2004. pp. 1438-1445.
- [SunT04b] H. Sundell and P. Tsigas. **Simple Wait-Free Snapshots for Real-Time Systems with Sporadic Tasks**. Proceedings of the 10th International Conference on Real-Time Computing Systems and Applications (RTCSA 2004). IEEE press. Aug. 2004
- [SunT04c] H. Sundell and P. Tsigas. **Lock-Free and Practical Doubly Linked List-Based Deques using Single-Word Compare-And-Swap**, Proceedings of the 8th International Conference on Principles of Distributed Computing (OPODIS 2004). Dec. 2004.
- [Sun05] H. Sundell. **Wait-Free Reference Counting and Memory Management**, Proceedings of the 19th International Parallel and Distributed Processing Symposium (IPDPS 05), IEEE, Apr. 2005.
- [GPST05] A. Gidenstam, M. Papatriantafidou, H. Sundell and P. Tsigas. **Efficient and Reliable Lock-Free Memory Reclamation Based on Reference Counting**, Proceedings of the 8th International Symposium on Parallel Architectures, Algorithms and Networks (I-SPAN 2005). IEEE. Dec. 2005.

Thesis:

- [Sun04] Håkan Sundell. **Efficient and Practical Non-Blocking Data Structures**, Ph.D. dissertation, Chalmers University of Technology, Nov. 2004.
- [Sun02] Håkan Sundell. **Applications of Non-Blocking Data Structures to Real-Time Systems**, Licentiate Thesis, Chalmers University of Technology, Mar. 2002.

Professional experience

System/Programming projects:

- 1. Title:** SpecDict – a non-blocking and traversable dictionary. **Duration:** 2004, 1 month. **Techniques:** C, Multi-process, Assembler, OS X.
- 2. Title:** CCS64 – Commodore 64 emulator version 3. **Duration:** 2003 and on. **Techniques:** C++, DirectX, Multi-thread, MFC, Windows.
- 3. Title:** NOBLE – a software library of non-blocking data structures. **Duration:** 2001 and on. **Techniques:** C, Multi-thread, Assembler, Unix, Windows, Linux.
- 4. Title:** C64 Webit v2 – Slot machine game. **Duration:** 2000, 1 month. **Techniques:** C++, Assembler, Windows CE.
- 5. Title:** Reverse Engineering Tool – SDL-Reverse. **Duration:** 1998, 6 months. **Techniques:** C++, UML, Corba, OODB, SDL, Plex, Tau.
- 6. Title:** C64 Webit v2 – Emulator. **Duration:** 1998, 1 month. **Techniques:** C++, Assembler, MS-DOS.
- 7. Title:** Tax-Free Scandinavia shopping-site. **Duration:** 1998, 1 month. **Techniques:** C++, CGI, Java, Javascript, HTML, Unix.
- 8. Title:** CCS64 – Commodore 64 emulator version 2. **Duration:** 1998. **Techniques:** C++, DirectX, Multi-thread, Windows.
- 9. Title:** TMAX. **Duration:** 1997, 10 months. **Techniques:** Borland Delphi, C++, ODBC, SQL, Unix, Windows.
- 10. Title:** ADMAX. **Duration:** 1997, 4 months. **Techniques:** Borland Delphi, CGI, C++, InConcert, MS SQL, Windows.
- 11. Title:** Calix car-equipment product catalogue and company presentation CD. **Duration:** 1997, 2 months. **Techniques:** C++, Borland ObjectWindows, Windows.
- 12. Title:** Fazer “Dumlemannen” on-line web game. **Duration:** 1997, 1 month. **Techniques:** Java.
- 13. Title:** Chiquita movable advertisement boot with touch-screen. **Duration:** 1996, 1 month. **Techniques:** C++, Assembler, MS-DOS.
- 14. Title:** “Mr.Greed” – video poker machine with betting system. **Duration:** 1996, 2 months. **Techniques:** C++, Assembler, MS-DOS.
- 15. Title:** “Threatening Losses” – advertisement game for NCM credit insurance. **Duration:** 1996, 1 month. **Techniques:** C++, Assembler, MS-DOS.
- 16. Title:** Stock market display in Java for Web usage. **Duration:** 1996, 1 month. **Techniques:** Java, Corba.
- 17. Title:** Ecupan printer server for bakery system. **Duration:** 1996, 1 month. **Techniques:** C, Assembler, COBOL, MS-DOS.
- 18. Title:** “Yrkesvalen” – application for unemployment offices. **Duration:** 1996, 3 months. **Techniques:** C++, Borland ObjectWindows, Windows.
- 19. Title:** “Officersförbundet” – a multimedia presentation. **Duration:** 1996, 1 month. **Techniques:** C++, Assembler, MS-DOS.
- 20. Title:** “Hets” – an advertainment game. **Duration:** 1995, 1 month. **Techniques:** C++, Assembler, MS-DOS.
- 21. Title:** Guitar designer. **Duration:** 1995, 3 months. **Techniques:** C++, Borland ObjectWindows, Windows.
- 22. Title:** CCS64 – Correct emulation of microcomputer C64 in system-independent software. **Duration:** 1995. **Techniques:** C++, Assembler, MS-DOS, Solaris, X11.
- 23. Title:** PlaySID – classic game music player. **Duration:** 1990. **Techniques:** C, Assembler, Amiga OS.

- Projects 5, 9, 10 together with group of programmers. Project 23 together with another programmer. All other projects as main programmer, coworkers mainly consisting of artists, designers and topic experts.

Professional courses taken:

- 1. Title:** CTC workshop on High Performance Computing. **Tutor:** Cornell/Microsoft. **Length:** 2 days.
- 2. Title:** Hands-On TCP/IP Programming. **Tutor:** Learning tree. **Length:** 4 days.
- 3. Title:** POET Object oriented database Workshop C++. **Tutor:** POET Software Gmbh. **Length:** 2 days.

Programming languages experience:

C, C++, Pascal, Java, Basic, Assembler (6502, 68000, 80x86, PowerPC, Sparc, Mips), Perl.

System techniques experience:

CGI, Corba, TCP/IP, SQL, UML, HTML, PThreads, DPMI, DirectX, X11.

Programming tools experience:

MS Visual Studio, Symantec Café, Borland Delphi, Borland C++, Emacs, GCC, Make, CVS.

System platforms experience:

Windows 3.1/NT/95/98/2000/XP, Sun Solaris, Linux, MS-DOS, SGI Irix, IBM Aix, Mac OS X, Amiga OS.

Foreign Languages

English:

Fluent in speaking and writing

German:

Good understanding in reading.
