

Ánoq of the Sun Detailed CV as a Computer Scientist

Ánoq of the Sun (alias Johnny Bock Andersen), Hardcore Processing *

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Online Link for this Detailed CV

This document is available online in 2 file formats:

- <http://www.hardcoreprocessing.com/home/anoq/cv/anoqcvcomputerscientist.pdf>
- <http://www.hardcoreprocessing.com/home/anoq/cv/anoqcvcomputerscientist.ps>

All My CVs and an Overview

All my CVs (as a computer scientist, musician and graphics artist) and an overview can be found at:

- <http://www.hardcoreprocessing.com/home/anoq/cv/anoqcv.html>

Contents Overview

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About the Time Durations in This Detailed CV

- **All time usage is only counted once:**

No projects or courses count the same time or efforts more than once. So for instance, even though CeX3D Converter uses CeXL internally, I have not counted the time used for designing or implementing CeXL twice. Also, the time used for all university projects which are relevant for my company (Hardcore Processing) are only counted once in the project lists.

- **...except for the employment list and the skill list:**

The only exception is that the list of companies where I have been employed counts the total employment time, even though the work done there is also counted in the project lists, but this is clearly stated in the headline for that section. The same goes for the skill list.

- **References to educative material are sometimes repeated:**

Some references to educative material are repeated more than once, when it is relevant for several projects or topics.

- **Duration is considered as full-time work:**

Whenever I write 'Duration' I mean when considered as full-time work:

- *1 day = 7.5 hours*
- *1 week = 5 days*
- *1 month = 22 days*
- *1 year = 12 months*

These durations are sometimes estimates, but most are hopefully fairly accurate - and yes, I have generally 'worked' more than full-time in my life, since many of the things I have done are also spare-time interests.

Employment Overview

(Durations Counted Again in Project Lists)

| Company | My Role | Dates | Duration |
|---|--|-----------|-----------------------------|
| | | | 1 day=7.5 hrs |
| Anoq Music I founded this record label December 2007 <small>www.anoq.net/music/label</small> | Music Composer and Producer Music Publishing Promotion | 2007-now | (see musician CV) |
| Prevas (formerly Glaze) <small>www.prevas.dk</small> Worked for various clients, e.g. RTX Telecom and Exensor (Sweden) | Software Developer Consultant | 2004-2007 | 2.5 years |
| Freelance work for various companies: e.g. SimCorp, NetGroup, GateHouse | Software Developer Consultant | 1998-2010 | (see project lists) |
| Hardcore Processing I founded this company 27th of September 1998 <small>www.hardcoreprocessing.com</small> | Software Developer Graphics Artist Sales and Marketing Webmaster, System Admin. | 1998-now | (see project lists) |
| Casper Thorsøe Video Production <small>www.ctvp.com</small> | 3D Graphics Artist (Partly System Administrator) | 1997-1998 | 1 year (see graphics CV) |
| Visionik <small>www.visionik.dk</small> | Software Developer (Partly Graphics Artist) | 1997 | 5 months |
| Sandlykke & Leifsgård (now called TargIT) <small>www.targit.dk</small> | Software Developer | 1994-1996 | 2 years and 5 months |

Human Languages

| Laguage | Skill level |
|-------------------------------------|---|
| English | Read, write, understand, speak <i>fluently</i> |
| Danish | Read, write, understand, speak <i>fluently</i> - my mother tongue |
| Northern Jutish (Danish dialect) | Understand, speak <i>fluently</i> (not really a written language) |
| Modern Greek | Read, write, understand, speak <i>fluently</i> |
| French | Read, write to some extent, need practice for serious communication |
| German | Read, write to some extent, need practice for serious communication |
| Swedish | Read, understand - because it's very similar to Danish |
| Norwegian | Read, understand - because it's very similar to Danish |

List of Software Development Skills (Updated on 2010-01-26) (Years Are Not Full-time Durations, But Years with Active Use)

Key for "Level": 1: Expert, 2: Lots of Routine, 3: Routine, 4: Good Knowledge, 5: Some Knowledge

| Skill Name / Group | Doing What | Level (1-5) | Latest Use | Years with Active Use |
|--|------------------------|----------------|---------------|--------------------------|
| Programming Languages: | | | | |
| · Standard ML (a.k.a. SML '97) | Programming | 1 | 2010 | 13 |
| · CeXL (language that I created) | Programming | 1 | 2007 | 2 |
| · OCaml (Standard ML dialect) | Programming | 3 | 2002 | 0.2 |
| · MLFi (OCaml dialect) | Programming | 1 | 2010 | 1.5 |
| · Haskell (lazy Standard ML dialect) | Programming | 4 | 2003 | 0 |
| · Scheme, LISP | Programming | 4 | 1999 | 0.1 |
| · C# | Programming | 2 | 2010 | 1.5 |
| · Python | Programming | 2 | 2005 | 1 |
| · Java | Programming | 4 | 2003 | 0.5 |
| · C | Programming | 1 | 2006 | 9-15? |
| · C++ | Programming | 1 | 2006 | 9-12? |
| · Objective-C ("mix of C and Smalltalk") | Programming | 2 | 1998 | 2 |
| · Delphi/Pascal | Programming | 1 | 2006 | 4 |
| · APL | Programming | 5 | 2010 | 1.5 |
| · RenderMan Shading Language | Programming | 1 | 2007 | 4 |
| · MEL (Maya Embedded Language) | Scripting | 3 | 1998 | 1 |
| Other Kinds of Languages: | | | | |
| · Operational Semantics (prog. lang. specification) | Language Specification | 1 | 2007 | 7 |
| · Denotational Semantics (prog. lang. proofs) | Language Specification | 3 | 2007 | 0.5 |
| · BNF-Grammar | Language Specification | 1 | 2007 | 7 |
| · Regular Expressions | Language Specification | 1 | 2007 | 7 |
| · COM/CORBA IDL (Interface Definition Lang.) | Programming | 4 | 2001 | 1 |
| · UML (Unified Modelling Language) | Software Design | 2 | 2006 | 5 |
| · GNU Make (and OMake and Microsoft NMake) | Writing | 3 | 2010 | 12? |
| · HTML | Writing | 3 | 2010 | 13? |
| · L ^A T _E X | Writing | 1 | 2010 | 11 |
| APIs, Interfaces, Protocols (Programming): | | | | |
| · Standard ML Basis Library | Programming | 1 | 2010 | 13 |
| · Delphi Visual Component Library | Programming | 1 | 2006 | 4 |
| · Microsoft .NET Framework | Programming | 3 | 2010 | 1.5 |
| · OpenStep (MacOS X's API descends from this) | Programming | 2 | 1998 | 2 |
| · Swing | Programming | 4 | 1997 | 0.1 |
| · Document Object Model (DOM) | Programming | 4 | 2001 | 0.1 |
| · TCP/IP (Sockets) | Programming | 3 | 2006 | 2 |
| · RS232 (PC Serial Port) | Programming | 4 | 2005 | 1 |
| · Gtk+ | Programming | 4 | 2007 | 0.1 |
| · XLib (X-Windows API) | Programming | 5 | 1999 | 0.3 |
| · SDL (Simple Direct Media Layer) | Programming | 2 | 2007 | 7 |
| · DirectX | Programming | 4 | 2001 | 0.5 |
| · RenderMan (API and RIB-files) | Programming | 1 | 2007 | 4 |
| · OpenGL | Programming | 4 | 2007 | 0 |
| · Maya Plugin API | Programming | 4 | 2003 | 0 |
| · LightWave 3D plugin API | Programming | 5 | 2001 | 0 |
| Databases (Programming Experience): | | | | |
| · MySQL | Programming | 4 | 2006 | 1 |
| · Btrieve, InterBase | Programming | 4 | 1996 | 2.5 |
| · ODBC (standardized database API) | Programming | 4 | 2001 | 1 |
| · SQL (Structured Query Language) | Programming | 3 | 2006 | 3 |
| Operating Systems (Programming Experience): | | | | |
| · Windows 95/98/NT/XP | Programming | 3 | 2010 | 8 |
| · Linux | Programming | 3 | 2010 | 12? |
| · Silicon Graphics IRIX, Sun Solaris | Programming | 5 | 2001 | 0.2 |
| Tools, Programs, IDEs, Version Control: | | | | |
| · I'll not bother listing them, tools are easy to use! | | | | |

Skills That I Am Not Interested In Using (Or Which Are Outdated):

Basic, Ada, JAM Programming Language (Jyacc App. Manager), MFC (Microsoft Foundation Classes), eXene (user-interface toolkit in Standard ML), Real 3D Programming Language, WML (WAP Markup Language), WMLScript, BeOS, AmigaOS / hardware programming, CyberGraphX (Amiga), DOS.

List of Projects Related to Software Development (Updated on 2010-01-01)

| Key for "Technologies": | |
|-------------------------|--|
| P: | Programming language |
| L: | Other kind of Language |
| A: | Application Programmer's Interface (API) or protocol |
| T: | Software development Tool |
| O: | Operating system or platform |
| B: | Significant amount of reading Books |
| RA: | Significant amount of reading Research Articles |

| Project | Client | Dates | Duration 1 day=7.5 hrs | Technologies |
|--|---|-----------|---------------------------|---|
| <ul style="list-style-type: none"> · CeX3D Inverse Computer vision software for automatic construction of 3D objects from hand-held camera images Pure software implementation, written in Standard ML, no gfx hardware used www.cex3d.net/inverse/ (work in progress) | Hardcore Processing www.hardcoreprocessing.com | 2009-2010 | 6 months | Standard ML (P) SML/NJ, MLton (T) SDL, SDL::ML (A) Linux (O) |
| <ul style="list-style-type: none"> · SimCorp Dimension: Investment management system. Design, documentation of software and development processes. Build-environment, software modules and more implemented in C# and MLFi / OCaml. Automated unit-tests and integration-tests. Integration with software sub-contractor. | SimCorp (Denmark) www.simcorp.com | 2008-2010 | 1.5 years | MLFi / OCaml, C# (P) .NET Framework (A) MSVS 2005 / 2008 (T) OMake (T), APL (P) Cygwin (T), Windows (O) documentation, unit-test, specification writing |

| Project | Client | Dates | Duration | Technologies |
|---|--|-----------|---|---|
| <ul style="list-style-type: none"> · Fast CeXyMan (new version) interactive 3D renderer, mostly using the RenderMan API (actually RI::ML) internally, pure software rendering 640x480x32bit 20 frames/sec (1.7Ghz P4) written in Standard ML, no gfx hardware used (unreleased) | Hardcore Processing www.hardcoreprocessing.com | 2007-2008 | 1 month <small>1 day=7.5 hrs</small> | Standard ML (P) SML/NJ, MLton (T) SDL, SDL::ML (A) RI::ML (A) Linux (O) |
| <ul style="list-style-type: none"> · Global Illumination 3D Volume Renderer (prototype) renders an example with cloud-like procedural volume data www.hardcoreprocessing.com/company/ (under technology examples) | Hardcore Processing www.hardcoreprocessing.com | 2007 | 1 month | Standard ML (P) SML/NJ, MLton (T) Linux (O) 3D volume rendering (B) global illumination (B) photon mapping (B) |
| <ul style="list-style-type: none"> · Anoq SML Basis Library Extensions extensions to API, standardization proposal (open to public discussion) www.hardcoreprocessing.com/pro/anoqsmllbasis/ | Hardcore Processing www.hardcoreprocessing.com | 2003-2007 | 1 month | Standard ML (P) SML/NJ, MLton (T) Linux (O) |
| <ul style="list-style-type: none"> · Wireless Headset Tests Worked on-site as consultant. Wireless headset (Bluetooth) tests with mobile phones. C/C++ code proof-reading. Substantial test-specification improvements. | Client of Prevas (formerly Glaze) (I was employed) www.prevas.dk | 2006-2007 | 10 months | C, C++ (bug-finding) (P) Windows (O) specification writing manual test (never again!) |
| <ul style="list-style-type: none"> · Several Projects: DECT Product tests Worked mostly on-site (Aalborg) as consultant. Documentation, specification with end-customer. Developed software for test-equipment to do automated hardware product testing, e.g.: Software flash-load, RF-tests, audio-tests, power measurements and software tests. | RTX Telecom www.rtx.dk Prevas (formerly Glaze) (I was employed) www.prevas.dk | 2005-2006 | 7 months | C, C++ (P) TCP/IP (A) Borland C++ Builder (T) Windows (O) documentation, specification writing |
| <ul style="list-style-type: none"> · UMRA: Sensor-based vehicle detection system Worked partly on-site in Sweden as consultant. Design, documentation of system interfaces. Real-time multithreaded communication and more implemented in C and Python. Automated unit-test of implementation. Integration with hardware sub-contractor. | Exensor (Sweden) www.exensor.se Prevas (formerly Glaze) (I was employed) www.prevas.dk | 2004-2005 | 1 year | C, Python (P) TCP/IP, RS232 (A) gcc (T), PC104 (O) Linux, Windows (O) documentation, unit-test, specification writing |

| Project | Client | Dates | Duration | Technologies |
|--|---|-----------|--|---|
| <ul style="list-style-type: none"> · Implement CeXL parser, type-inference, interpreter Latest version unreleased: Parses and type-checks 8000 lines of CeXL code in less than 2 seconds (1.7Ghz P4) www.cex3d.net/cexl/ | Hardcore Processing www.hardcoreprocessing.com | 2003-2004 | 1.3 months <small>1 day=7.5 hrs</small> | Standard ML (P) CeXL (P) SML/NJ, MLton (T) Linux (O) |
| <ul style="list-style-type: none"> · Design of CeXL a programming language (latest specification is unreleased) www.cex3d.net/cexl/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2004 | 1 year | Standard ML (P) Prog. lang. semantics (RA, B) L ^A T _E X (L) |
| <ul style="list-style-type: none"> · Software for Hospital Equipment | GateHouse www.gatehouse.dk (worked on-site at GateHouse's client) | 2003 | 1.5 months | C/C++ (P) UML (L) Rational Rose (T) MS Visual C++ (T) Windows 2000 / CE (O) |
| <ul style="list-style-type: none"> · CeX3D Converter LightWave 3D/Unreal Ed/ RenderMan RIB converter www.cex3d.net/converter/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2001 | 3 months | Standard ML (P) SML/NJ, MLton (T) gcc, MinGW (T) Linux, Windows (O) |
| <ul style="list-style-type: none"> · SDL::ML SDL bindings for Standard ML www.hardcoreprocessing.com/pro/sdlml/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2003 | 1 month | C, Standard ML (P) SDL (A) SML/NJ, MLton, ML Kit (T) gcc, MinGW (T) Linux, Windows (O) |
| <ul style="list-style-type: none"> · UI::ML as-of-yet unreleased user interface toolkit surpassing AbstractUI::ML | Hardcore Processing www.hardcoreprocessing.com | 2002-2003 | 2 months | Standard ML (P) SML/NJ, MLton, MinGW (T) SDL, SDL::ML, (A) Linux, Windows (O) |
| <ul style="list-style-type: none"> · CeX3D SM in-house 3D program for subdivision surfaces www.cex3d.net/sm/ | Hardcore Processing www.hardcoreprocessing.com | 2000-2002 | 3 months | Standard ML, CeXL (P) SML/NJ, MLton (T) MinGW (T) SDL, SDL::ML, UI::ML (A) RI::ML, Fast CeXyMan (A) Linux, Windows (O) |
| <ul style="list-style-type: none"> · Implement old CeXL parser, interpreter (used in CeX3D Converter before version 0.5) | Hardcore Processing www.hardcoreprocessing.com | 2000-2002 | 2 months | Standard ML (P) SML/NJ, MLton (T) Linux (O) |

| Project | Client | Dates | Duration | Technologies |
|--|---|-----------|---------------|---|
| | | | 1 day=7.5 hrs | |
| · Internet Payment System (worked on design and implementation) | NetGroup www.netgroup.dk | 2001-2002 | 2 months | C/C++, Standard ML (P) UML, L ^A T _E X (L) LyX, dia (T) Linux (O) |
| · Interactive Showreel company demo program www.hardcoreprocessing.com/company/showreel/ | Hardcore Processing www.hardcoreprocessing.com | 2001 | 5 days | Standard ML (P) SML/NJ, MLton, MinGW (T) SDL, SDL::ML, UI::ML (A) RI::ML, Fast CeXyMan (A) Linux, Windows (O) |
| · Fast CeXyMan (old version) interactive 3D renderer using the RenderMan API (actually RI::ML) internally. Written in Standard ML | Hardcore Processing www.hardcoreprocessing.com | 2000-2002 | 2 months | Standard ML (P) SML/NJ, MLton, MinGW (T) SDL, SDL::ML (A) RI::ML (A) Linux, Windows (O) |
| · Standard ML Code generally useful SML code 2D/3D geometry, combinator parsing, etc. www.hardcoreprocessing.com/pro/smlcode/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2001 | 1 month | Standard ML (P) SML/NJ, MLton, ML Kit (T) Linux, Windows (O) |
| · ISAPI Plugins for Zeus Webserver programming | NetGroup www.netgroup.dk | 2001 | 1 week | C (P) HTML (L) ISAPI, CGI (A) gcc, Zeus Webserver, IIS (T) Linux, Windows (O) |
| · Internet Payment System Client implementation of client and backends, ASP examples, documentation | NetGroup www.netgroup.dk | 2000-2001 | 3 months | C/C++, ASP (P) UML, L ^A T _E X, HTML (L) COM, CGI (A) gcc, MS Visual C++ (T) Zeus Webserver, IIS (T) Linux, Windows (O) |
| · Misc. Other Programming | NetGroup www.netgroup.dk | 2000-2001 | 1 month | C/C++ (P) HTML (L) CGI, MIME, (A) MS Excel ODBC (A) MS Access ODBC (A) IRIX/POSIX Shared Mem. (A) gcc, MS Visual C++ (T) MS NMake (T) Zeus Webserver, IIS (T) Linux, IRIX, Solaris, Windows (O) |
| · RI::ML RenderMan Interface for Standard ML www.hardcoreprocessing.com/pro/riml/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2005 | 3 weeks | Standard ML (P) RenderMan (A) SML/NJ, MLton, ML Kit (T) Linux (O) |

| Project | Client | Dates | Duration | Technologies |
|---|---|-----------|----------------------|---|
| | | | 1 day=7.5 hrs | |
| · Rebild Vandrerhjem Website website programming and translation from Danish to English and Greek www.vandrerhjem.net | Rebild Vandrerhjem www.vandrerhjem.net | 2001 | 4 days | HTML (L) Danish, English, Greek (L) Linux, Windows (O) |
| · ABC Expedition game (programming) www.hardcoreprocessing.com/entertainment/ | Virtual Effects & Fantasies www.vef.dk | 2000 | 3 weeks (14 days) | Standard ML (P) SDL, SDL::ML (A) SML/NJ, MLton (T) gcc, MinGW (T) Linux, Windows (O) |
| · The Unlimited Game game (programming) www.hardcoreprocessing.com/entertainment/ | Virtual Effects & Fantasies www.vef.dk | 1999 | 8 days | Standard ML (P) SDL, SDL::ML (A) SML/NJ, MLton, ML Kit (T) gcc, MinGW (T) Linux, Windows (O) |
| · The Sunkist Puzzle game (programming) www.hardcoreprocessing.com/entertainment/ | Virtual Effects & Fantasies www.vef.dk | 1999 | 3 days (25 hours) | C/C++ (P) SDL (A) gcc, MinGW (T) Linux, Windows (O) |
| · Leaf Invaders game (programming) www.hardcoreprocessing.com/entertainment/ | Virtual Effects & Fantasies www.vef.dk | 1999 | 8 days | C/C++ (P) SDL (A) gcc, MinGW (T) Linux, Windows (O) |
| · Billy The Kid game (programming) www.hardcoreprocessing.com/entertainment/ | Virtual Effects & Fantasies www.vef.dk | 1999 | 2 weeks | C/C++ (P) SDL (A) gcc, MinGW (T) Linux, Windows (O) |
| · Misc. Programming GUI stuff, printer routines, ODBC programming in C++ | Context | 1999 | 1 month | C/C++, Delphi Pascal (P) gcc (T) ODBC (A) Delphi, C++ Builder (T) Linux, Windows (O) |
| · MLton for Windows port of MLton compiler for cross-compiling to Windows www.hardcoreprocessing.com/pro/mltonwin32/ | Hardcore Processing www.hardcoreprocessing.com | 1999-2003 | 1 month | C, Standard ML (P) MLton (T) gcc, MinGW (T) Linux, Windows (O) |
| · ML Kit for Windows port of ML Kit compiler for cross-compiling to Windows www.hardcoreprocessing.com/pro/mlkitwin32/ | Hardcore Processing www.hardcoreprocessing.com | 1999 | 2 weeks | C, Standard ML (P) ML Kit (T) gcc, MinGW (T) Linux, Windows (O) |

| Project | Client | Dates | Duration | Technologies |
|---|---|-----------|-------------------------|--|
| · WinMain , library for porting to Windows www.hardcoreprocessing.com/pro/winmain/ | Hardcore Processing www.hardcoreprocessing.com | 1999 | 3 days 1 day=7.5 hrs | C (P) gcc, MinGW (T) Linux, Windows (O) |
| · CodeTransformer reads OMG IDL files and C++ header files and generates C++ code www.hardcoreprocessing.com/pro/codetransformer/ | Hardcore Processing www.hardcoreprocessing.com | 1999 | 1 month | Standard ML (P) C++, OMG IDL (P) SML/NJ, ML Works (T) ML-Yacc, ML-Lex (L, T) Linux, Windows (O) |
| · The Construct old user interface builder www.hardcoreprocessing.com/pro/theconstruct/ | Hardcore Processing www.hardcoreprocessing.com | 1999 | 2 weeks | Standard ML (P) SML/NJ, ML Works (T) Linux, Windows (O) |
| · AbstractUI::ML old user interface toolkit www.hardcoreprocessing.com/pro/abstractuiml/ | Hardcore Processing www.hardcoreprocessing.com | 1998-1999 | 4 months | Standard ML (P) SML/NJ, ML Works (T) eXene (A) Linux, Windows (O) |
| · A Small 3D Wireframe Demo test of Standard ML for real-life use www.hardcoreprocessing.com/pro/asmall3dwireframedemo/ | Hardcore Processing www.hardcoreprocessing.com | 1997-1998 | ??? | Standard ML (P) SML/NJ (T) eXene (A) Linux (O) |
| · ML Performance Test performance test of SML/NJ vs. gcc www.hardcoreprocessing.com/home/anoq/Programming/MLSpeed.html | Hardcore Processing www.hardcoreprocessing.com | 1997-1998 | ??? | Standard ML (P) C, Objective-C (P) SML/NJ, gcc (T) eXene (A) Linux (O) |
| · Hardcore Processing Website huge website with auto-generated HTML code from L ^A T _E X using in-house software www.hardcoreprocessing.com | Hardcore Processing www.hardcoreprocessing.com | 1998-2008 | ??? | HTML, L ^A T _E X (L) Standard ML (P) ML Server Pages, PHP (P) Linux, Windows (O) |

| Project | Client | Dates | Duration | Technologies |
|---|---|---------------|---------------|---|
| | | | 1 day=7.5 hrs | |
| · W3C's Document Object Model (DOM) implemented in C++ and can be used with or without CORBA www.hardcoreprocessing.com/pro/domimplementation/ | Berlin (Open Source) www.berlin-consortium.org | 1998 | 1 month | C, C++, OMG IDL (P) egcs (gcc), omniORB (T) Linux, CORBA (O) |
| · Warsaw API in Berlin discussion and software/API design www.hardcoreprocessing.com/home/anoq/Programming/Warsaw.html | Berlin (Open Source) www.berlin-consortium.org | 1997- 1999 | ??? | C, C++, OMG IDL (P) egcs, gcc, omniORB (T) Linux, CORBA (O) |
| · GNUStep/NSXKit implemented parts of NeXT's OpenStep API for X-Windows www.hardcoreprocessing.com/home/anoq/Programming/GNUStep.html | GNUStep (Open Source) www.gnustep.org | 1997 | ??? | C, Objective-C (P) gcc (T) Linux, X-Windows (O) |
| · GNUStep NSAttributedString implemented classes of NeXT's OpenStep API www.hardcoreprocessing.com/home/anoq/Programming/GNUStep.html | GNUStep (Open Source) www.gnustep.org | 1997 | ??? | C, Objective-C (P) gcc (T) Linux (O) |

| Project | Client | Dates | Duration | Technologies |
|---|--|-----------|--|--|
| · (Misc. During Employment) interactive CD-ROM programming, game programming | Visionik (I was employed) www.visionik.dk | 1997 | 4.5 months <small>1 day=7.5 hrs</small> | Delphi Pascal (P) Delphi, Authorware (T) Director (T) Windows (O) |
| · Up-To-Date worked on service system for Danish optic shops. Mostly worked on the (fairly complex) part for ordering glass | Sandlykke & Leifsgård (I was employed) www.targit.dk | 1996 | 1 year | Delphi Pascal (P) Delphi (T) Btrieve, InterBase (T) ODBC (A) SQL (L) Windows (O) |
| · TankMax worked on economy system for gas stations | Sandlykke & Leifsgård (I was employed) www.targit.dk | 1995 | 1 month | Turbo Pascal (P, T) Btrieve (T) DOS (O) |
| · ELFOs Meldesystem computer system for registering companies performing work on electrical house installations and check that the Danish laws for 'licitation' are respected | Sandlykke & Leifsgård (I was employed) www.targit.dk | 1994-1995 | 1 year and 4 months | Delphi Pascal (P) C, JAM Prog. Lang (P) Delphi, JAM (T) Btrieve, InterBase (T) ODBC (A) SQL (L) Windows (O) |
| · Crossplatform GUI Toolkit (unreleased) written in C / C++ / Objective-C www.hardcoreprocessing.com/ home/anoq/Programming/GUIDevTool.html | (Private) | 1995-1997 | ??? | C, C++, Objective-C (P) Lattice C / SAS C (Amiga) (T) gcc (Amiga / x86 PC) (T) AmigaOS, NetBSD (Amiga) (O) Linux (x86 PC) (O) |
| · Amiga Games programming for 1 whole and 2 halve games (unreleased) www.hardcoreprocessing.com/ home/anoq/Programming/AmigaGames.html | (Private) | 1990-1994 | ??? | C (P) Lattice C (Amiga) (T) AmigaOS (O) |

My M.Sc. in Computer Science (2004-..., Not Yet Graduated)

| Key for "Institution": | |
|------------------------|--|
| DIKU: | Cumputer Science Department at the University of Copenhagen, Denmark |
| ITU: | IT-University of Copenhagen, Denmark |

| Key for "Course Material": | |
|----------------------------|----------------------|
| B: | Book |
| N: | Special course Notes |
| RA: | Research Articles |

M.Sc. Projects in Computer Science (See Project List for Project Details and Time-Usage)

| Course | Institution | Dates | ECTS | Result | Downloadable |
|---|-------------|-------|------|--|--------------|
| Camera Registration from Image Correspondences | DIKU | 2009 | 7.5 | Part of CeX3D Inverse <small>www.cex3d.net/inverse</small> | Yes |
| Image Correspondences for Camera Registration | DIKU | 2009 | 7.5 | Part of CeX3D Inverse <small>www.cex3d.net/inverse</small> | Yes |

M.Sc. Courses in Computer Science

| Course | Institution | Dates | Duration <small>1 day=7.5 hrs</small> | Course Material | Made My Notes Downloadable |
|---|-------------|-------|--|--|-------------------------------|
| Program Inversion and Reversible Computation | DIKU | 2009 | 2 months | Lecture notes (N) and Misc articles (RA) | No |
| Medical Image Analysis | DIKU | 2009 | 2 months | Lecture notes (N) and Misc articles (RA) | No |
| Formal Semantics of Programming Langauges | DIKU | 2007 | 2 months | 'Formal Semantics of Programming Langauges' (B) Misc articles (RA) | No |
| Program Analysis and Transformation | DIKU | 2005 | 1 week | 'Program Analysis and Transformation' (N) | No |
| Types and Programming Langauges | DIKU | 2004 | 2 months | 'Types and Programming Langauges' (B) Misc articles (RA) | No |
| Topics in Language Based Security (Ph.D. summer course) | ITU | 2001 | 1 week | Misc articles (RA) | No |
| Advanced Compiler Construction | DIKU | 2000 | 2 months | 'Modern Compiler Implementation in ML' (B) Misc articles (RA) | No |

My B.Sc. in Computer Science and Mathematics (1998-2004)

| Key for "Institution": | |
|------------------------|--|
| Ath: | Maths Department at the University of Athens , Greece |
| DIKU: | Computer Science Department at the University of Copenhagen, Denmark |
| HCØ: | Maths Department at the University of Copenhagen, Denmark |
| ØEI: | Eastern Europe Institute at the University of Copenhagen, Denmark |

| Key for "Course Material": | |
|----------------------------|----------------------|
| B: | Book |
| N: | Special course Notes |
| RA: | Research Articles |

| Key for "Made My Notes Downloadable": | |
|---|--|
| Tells which courses I wrote publicly available notes for at: | |
| http://www.hardcoreprocessing.com/articles/maths/summaries/ | |
| http://www.hardcoreprocessing.com/articles/huolang/greek/ | |

B.Sc. Courses in Mathematics

| Course | Institution | Dates | Duration <small>1 day=7.5 hrs</small> | Course Material | Made My Notes Downloadable |
|-----------------------------|--|-----------|--|--|-------------------------------|
| Mat 2AL | HCØ | 2003-2004 | 2 months | 'Algebra' (B) | Yes |
| Measure Theory / Mat 3MI | Followed at Ath exam at HCØ | 2002-2004 | 2 months | 'Θεωρία Μέτρων' (B) | Yes |
| Probability I | Ath | 2002-2003 | 2 months | 'Μάτ- og integralteori' (B) 'Θεωρία Πιθανοτήτων και Εφαρμογές I' (B) | Yes |
| Mat 3GT | HCØ | 2002-2003 | 2 months | 'Topology' (B) | Yes |
| Mat 2KF | HCØ | 2002-2003 | 2 months | 'Kompleks Funktionsteori' (B) | Yes |
| Mat 3GE | HCØ | 2002 | 2 months | 'Elemental Differential Geometry' (B) | Yes |
| Mat 2AN | HCØ | 2001-2002 | 2 months | 'Metriske Rum' (B) 'Hilbert Rum' (B) | Yes |
| Mat Y | HCØ | 2001 | 1 month | 'Introduktion til abstrakt matematik' (B) | A few |
| Mat 1GB | HCØ | 1999 | 2 months | 'Linear Algebra' (B) | A few |
| Mat 1GA | HCØ | 1998 | 2 months | 'Linear Algebra' (B) | A few |
| Mat XX | HCØ | 1998 | 2 months | 'Aspects of Combinatorics' (B) | No |

Additional B.Sc. Course in Modern Greek Grammar

| Course | Institution | Dates | Duration <small>1 day=7.5 hrs</small> | Course Material | Made My Notes Downloadable |
|-----------|-------------|-------|--|--|-------------------------------|
| Grammatik | ØEI | 2004 | 1.5 months | 'Lærebog i græsk for universitetsstuderende' (B) 'Lille kompendium i græsk grammatik' (B) | Yes |

B.Sc. Courses in Computer Science

| Course | Institution | Dates | Duration <small>1 day=7.5 hrs</small> | Course Material | Made My Notes Downloadable |
|--|-------------|-----------|--|---|-------------------------------|
| Bachelor's Thesis 'Definition of CeXL' (see Design of CeXL in project list) <small>www.cex3d.net/cex1/</small> | DIKU | 2003 | (counted in project list) | 'Definition of Standard ML' (B) Loads of other books and articles (B, RA) (see thesis litterature list) | Thesis |
| Dat 1F | DIKU | 2002-2003 | 2 months | 'Operating System Concepts' (B) 'Computer Networking' (B) 'Multiprogramming' (N) 'Programminger på Digital Alpha-arkitekturen' (N) | No |
| Dat 2A | DIKU | 2001 | 2 months | 'Introduction to Algorithms' (B) 'Branch & Bound Algorithms & Generelle Optimeringsheuristikker' (N) | No |
| Dat 1E | DIKU | 1999 | 2 months | 'Computer Organization & Design' (B) 'Arkitekturdelen' (N) 'SimSys' (N) 'Oversætterdelen' (N) 'Basics of Compiler Design' (N) | No |
| Dat 2V Grafik | DIKU | 1999 | 2 months | 'Computer Graphics Principles and Practice' (B) | No |
| Dat 2V Programmeringssprog | DIKU | 1999 | 2 months | Lecture notes on operational semantics (N) | No |
| Dat 0 | DIKU | 1998-1999 | 4 months | 'ML for the Working Programmer' (B) 'Introduction to ML' (B) 'Data Structures & Problem Solving Using Java' (B) 'UML Distilled' (B) 'Funktioner og simple datastrukturer' (N) 'Videregående algoritmer, datastrukturer og typer' (N) | No |

Basic Education and Misc Courses

| Education | Institution | Dates | Duration <small>1 day=7.5 hrs</small> | Education Material |
|---|-----------------------------------|-----------|--|------------------------|
| Modern Greek for ERASMUS students | University of Athens Greece | 2002-2003 | 4 months (twice a week for 1 year) | 'Ελληνικά για ERASMUS' |
| Modern Greek evening course | Københavns Kommunes Aftenskole | 2000-2001 | 2 weeks (once a week for 1 year) | 'Ελληνικά Τώρα 1 + 1' |
| High School (mathematical line with high level maths and high level music) | Dronninglund Gymnasium | 1991-1994 | 3 years | |
| Elementary School (up till 9th grade) | Dybvad Skole | 1981-1991 | 10 years | |

Conferences Education (Ph.D.-level)

| Key for "Course Material": | |
|----------------------------|-------------------|
| B: | Book |
| RA: | Research Articles |
| CD: | CD-ROM or DVD-ROM |

Conference Paper Sessions (Ph.D.-level Presentations of Latest Research)

| Conference / Symposium | Dates | Duration | Conference Material |
|---|-------|-----------------|---|
| | | 1 day=7.5 hrs | |
| SIGGRAPH www.siggraph.org/s2009/ | 2009 | 4 days | 'acm Transactions on Graphics August 2009, Vol 28, Nr 3' (B, RA) |
| Visionday www.visionday.dk | 2009 | 3 days | Online slides |
| EuroGraphics www.eg.org | 2009 | 3 days | 'Computer Graphics Forum Volume 28 Number 2' (B, RA) |
| SIGGRAPH www.siggraph.org/s2008/ | 2008 | 4 days | 'acm Transactions on Graphics August 2008, Vol 27, Nr 3' (B, RA) |
| Volume and Point-Based Graphics Symposium on Geometry Processing | 2008 | 1 day 3 days | 'Volume and Point-Based Graphics 2008' (B, RA) |
| EuroGraphics www.eg.org | 2008 | 3 days | 'Computer Graphics Forum Volume 27 Number 2' (B, RA) |
| Parallel Graphics and Visualization | 2008 | 2 days | |
| EuroGraphics www.eg.org | 2007 | 3 days | 'Computer Graphics Forum Volume 26 Number 3' (B, RA) |
| International Symposium on Volume Graphics | 2007 | 1.5 days | 'Volume Graphics 2007' (B, RA) |
| Symposium on Point-Based Graphics (I missed 1st day!) | 2007 | 0.5 days | 'Symposium on Point-Based Graphics 2007' (B, RA) |
| SIGGRAPH www.siggraph.org/s2007/ | 2007 | 4 days | 'acm Transactions on Graphics July 2007, Vol 26, Nr 3' (B, RA) |
| SIGGRAPH www.siggraph.org/s2006/ | 2006 | 4 days | 'acm Transactions on Graphics July 2006, Vol 25, Nr 3' (B, RA) |
| SIGGRAPH www.siggraph.org/s2005/ | 2005 | 4 days | 'acm Transactions on Graphics July 2005, Vol 24, Nr 3' (B, RA) |
| SIGGRAPH www.siggraph.org/s2004/ | 2004 | 4 days | 'acm Transactions on Graphics Aug. 2004, Vol 23, Nr 3' (B, RA) |
| SIGGRAPH www.siggraph.org/s2001/ | 2001 | 3 days | 'SIGGRAPH 2001 Conference Proceedings' (B, RA) |
| SIGGRAPH www.siggraph.org/s2000/ | 2000 | 3 days | 'SIGGRAPH 2000 Conference Proceedings' (B, RA) |
| SIGGRAPH www.siggraph.org/s99/ | 1999 | 3 days | 'SIGGRAPH 1999 Conference Proceedings' (B, RA) |

Additional Conference Courses (Mostly Ph.D.-level)

| Course | Conference | Dates | Duration | Course Material |
|--|--|-------|----------|--|
| GPU-Based Volume Ray-Casting with Advanced Illumination (Tutorial T4) | EuroGraphics www.eg.org | 2009 | 1 day | |
| Interactive Shape Modelling and Deformation (Tutorial T3) | EuroGraphics www.eg.org | 2009 | 0.5 day | |
| Mesh Parameterization: Theory and Practice (course 2) | SIGGRAPH www.siggraph.org/s2007/ | 2007 | 1 day | 'Mesh Parameterization Methods and Their Applications' (B) |
| Digital Modeling of the Appearance of Materials (course 12) | SIGGRAPH www.siggraph.org/s2006/ | 2006 | 3 hours | 'SIGGRAPH 2006 Full Conference DVD-ROM' (CD) |
| Discrete Differential Geometry: An Applied Introduction (course 14) | SIGGRAPH www.siggraph.org/s2005/ | 2005 | 1 day | 'SIGGRAPH 2005 Full Conference DVD-ROM' (CD) |
| Discrete Differential Geometry: An Applied Introduction (course 14) | SIGGRAPH www.siggraph.org/s2005/ | 2005 | 1 day | 'SIGGRAPH 2005 Full Conference DVD-ROM' (CD) |
| Point-Based Computer Graphics (course 6) | SIGGRAPH www.siggraph.org/s2004/ | 2004 | 1 day | 'SIGGRAPH 2004 Full Conference DVD-ROM' (CD) |
| How to Give a Great SIGGRAPH Talk (course 41) | SIGGRAPH www.siggraph.org/s2001/ | 2001 | 3 hours | 'How to Give a Great SIGGRAPH Talk' (B, CD) |
| Aquisition and Visualization of Surface Light Fields (course 46) (only first half) | SIGGRAPH www.siggraph.org/s2001/ | 2001 | 3 hours | 'Aquisition and Visualization of Surface Light Fields' (B, CD) |
| State of the Art in Monte Carlo Ray Tracing for Realistic Image Synthesis (course 29) | SIGGRAPH www.siggraph.org/s2001/ | 2001 | 1 day | 'State of the Art in Monte Carlo Ray Tracing for Realistic Image Synthesis' (B, CD) |
| Advanced Global Illumination (course 20) | SIGGRAPH www.siggraph.org/s2001/ | 2001 | 3 hours | 'Advanced Global Illumination' (B, CD) |
| Obtaining 3D Models with a Hand-Held Camera (course 2) | SIGGRAPH www.siggraph.org/s2001/ | 2001 | 3 hours | 'Obtaining 3D Models with a Hand-Held Camera' (B, CD) |
| Advanced Issues in Level of Detail (course 41) | SIGGRAPH www.siggraph.org/s2000/ | 2000 | 1 day | 'Advanced Issues in Level of Detail' (B, CD) |
| Approaches for Procedural Shading on Graphics Hardware (course 27) | SIGGRAPH www.siggraph.org/s2000/ | 2000 | 1 day | 'Approaches for Procedural Shading on Graphics Hardware' (B, CD) |
| A Practical Guide to Global Illumination using Photon Maps (course 8) | SIGGRAPH www.siggraph.org/s2000/ | 2000 | 3 hours | 'A Practical Guide to Global Illumination using Photon Maps' (B, CD) |
| Developing Efficient Graphics Software (course 6) (only first half) | SIGGRAPH www.siggraph.org/s2000/ | 2000 | 3 hours | 'Developing Efficient Graphics Software' (B, CD) |
| Subdivision for Modelling and Animation (course 37) | SIGGRAPH www.siggraph.org/s99/ | 1999 | 1 day | 'Subdivision for Modelling and Animation' (B, CD) |
| Advanced RenderMan: Beyond the Companion (course 25) | SIGGRAPH www.siggraph.org/s99/ | 1999 | 1 day | 'Advanced RenderMan: Beyond the Companion' (B, CD) |
| From Fourier Analysis to Wavelets (course 5) | SIGGRAPH www.siggraph.org/s99/ | 1999 | 1 day | 'From Fourier Analysis to Wavelets' (B, CD) |

Other Education (Books, Research Articles etc.)

Mostly covers things I learned myself. There are *other ways* to learn than from schools, universities and conferences.

| Key for "Material": | |
|---------------------|--------------------------|
| B: | Book |
| S: | Specification |
| RA: | Research Articles |

| Topic | Material |
|------------------------------------|---|
| Semantics of programming languages | 'Types and Programming Languages' (B) 'The Formal Semantics of Programming Languages' (B) 'Programming Languages: Concepts and Constructs' (B) 'The Definition of Standard ML' (B, S) <i>Research articles</i> (RA) |
| Compiler technology | 'Modern Compiler Implementation in ML' (B) 'Compilers, Principles, Techniques & Tools' (B) 'Advanced Compiler Design Implementation' (B) 'The Implementation of Functional Programming Languages' (B) 'Partial Evaluation and Automatic Program Generation' (B) <i>Research articles</i> (RA) |
| Programming | <i>Material about specific languages and APIs (see my skill list)</i> |
| RenderMan | 'The RenderMan Companion' (B) 'Advanced RenderMan: Creating CGI for motion pictures' (B) 'The RenderMan Interface Specification' (S) |
| 3D Computer Graphics | <i>The RenderMan material listed above</i> 'Principles of Digital Image Synthesis' (B) 'Advanced Animation and Rendering Techniques' (B) 'Computer Graphics: Principles and Practice' (B) '3D Computer Graphics' (B) 'Advanced Global Illumination' (B) 'Realistic Image Synthesis Using Photon Mapping' (B) 'Radiosity and Global Illumination' (B) 'Point-Based Graphics' (B) 'Level Set Methods and Dynamic Implicit Surfaces' (B) 'Introduction to Implicit Surfaces' (B) 'Real-Time Rendering' (B) 'Real-Time Volume Rendering' (B) '3D Game Engine Design' (B) 'Graphics Gems I, II, III, IV' (B) 'High Dynamic Range Imaging' (B) 'Texturing and Modelling' (B) 'The Art and Science of Digital Compositing' (B) 'Building a 3D game engine in C++' (B) <i>Many SIGGRAPH Course Notes Books</i> (B) <i>Many research articles (e.g. SIGGRAPH, EuroGraphics)</i> (RA) |
| Misc | 'The CORBA specifications' (S) 'Developing Business Applications with OpenStep' (B) 'Artificial Intelligence Agents in Virtual Reality Worlds' (B) |