

Justin E. Gottschlich

Objective To advance research in parallel computing with a concentration on transactional memory, machine learning, generic programming, computer architecture and compiler / language design.

Education 2004- Present University of Colorado - Boulder, CO
Boulder

Doctor of Philosophy in Electrical and Computer Engineering I 2008 – Present, Expected 2011 I

- Thesis Research: Parallel Computing, Specialization: Transactional Memory
- Publications:

Optimizing Consistency Checking for Memory-Intensive Transactions
[To Appear in the ACM SIGPLAN Symposium on Principles of Distributed Computing (PODC) (brief announcement), August 2008]

Extending Contention Managers for User-Defined Priority-Based Transactions
[Workshop on Exploiting Parallelism with Transactional Memory and other Hardware Assisted Methods (EPHAM), April 2008]

Exploration of Lock-Based Software Transactional Memory
[M.S. Thesis, Department of Electrical and Computer Engineering, University of Colorado-Boulder, October 2007]

DracoSTM: A Practical Approach to Software Transactional Memory
[ACM SIGPLAN Library Centric Software Design, August, 2007]

Master of Science in Electrical and Computer Engineering [3.91 / 4.00 GPA, 2004 – 2007]

- Neural Network Design
- Design and Analysis of Algorithms
- Thesis Research: Software Transactional Memory
- Independent Research: Compiler Construction, x86 Assembly Regions
- Principles of Numerical Computation
- Parallel Processing (Hardware / Software)
- Artificial Intelligence (Bayesian Reasoning, Learning Decision Trees, Neural Networks)
- Advanced Computer Architecture
- Code Generation and Optimization (Static and Dynamic Compilers)

1994-1998 (conferred 12/2002) Colorado State University Fort Collins, CO

Bachelor of Science in Computer Science

Experience 4/2004 – Present Raytheon Company Aurora, CO

Justin E. Gottschlich

Senior Software Engineer II

- Software team lead for real-time hardware simulation in C++ and Java.
- Rocky Mountain Engineering (RME) Employee of the Quarter, third quarter 2006. Elected for work in following areas:
 - machine learning software system with database integration for early hardware anomaly detection and attribute importance model building.
 - taught numerical computation sessions to fellow engineers in sub areas of; equation stability, numerical error, condition number.
 - transactional memory (TM) research; paper submittals, theoretical research, TM library construction.
- Constructed machine learning software system with database integration. Support vector machine model building, attribute importance model building and real-time application of SVM system for live prediction analysis of anomalous behavior.
- Technical Honors peer-elected recipient for 2005.
- Architected anomaly prediction concept for critical systems using Bayesian Network. Implemented prototype of architected anomaly prediction Bayesian Network in C++ (including simplistic AI algorithms).
- Architected anomaly correlation concept for critical systems using Learning Bayesian Networks. Designed interaction methodology for real-time and back-end systems for continually improving AI critical system prediction.
- Elected as Subject Matter Expert for Raytheon, Aurora Campus (+2,500 employees) in the following areas:
 - General C++, C++'s Standard Template Library, C++ Templates, Mozilla Platform
- Aided in design and development of Service Oriented Architecture and UI software for internal research and development (IRAD) team. Proposed and began implementation of generic UI conversion software.
- Architected and implemented Windows Exception Handling Component to perform stack traces of crashes on Windows machines. Trained peers on understanding stack walker run-time behavior and programmatic API.
- Built simulators of various critical pieces of hardware in C++ for software validation and testing purposes.
- Raytheon Six Sigma Specialist.

6/2002 – 3/2004 (Senior Engineer)

Quark, Inc.

Denver, CO

11/2001 – 2/2002 (Contractor)

Software Engineer II

- Memory manager: designed and implemented Quark's memory manager which is used for all XPress boxes. Memory manager uses template policy for customizable cleanup algorithm.
- Exception handling: designed and implemented Quark XPress's exception handling model.
- Rules/expressions: designed and implemented rules algorithm using polymorphic and template design for both run-time flexibility and compile-time type-safety.
- Taught basic-advanced C++ technical sessions in Denver and India.
- Implemented pre-existing design for XMenu system, including refactor all XPress and in-house XTension menus for menu command id support.
- Tree_pair container which was written for Nodeka (see below) has been licensed to Quark for use in their PlaceHolders Required Component as well as their XML Required Components.

6/1998 - Present

Nodeka, LLC.

Broomfield, CO

Justin E. Gottschlich

Founder / Owner / Software Engineer

- Created multi-player online game (www.nodeka.com), developed in C++. Uses STL containers, created template tree_pair/multitree_pair container and iterators following STL model (licensed by Quark), created TCP/IP polling socket model, created AI tree scripting language (rational agents, decision trees) which can be modified/added at runtime into C++ framework, created runtime generated overhead mapping system (highly optimized, 100+ players simultaneously generating overhead map every 100 milliseconds), created simple XML parser (OS independent), created XML class template for grouped types, created dynamic runtime quest system, created polymorphic multiple inheritance object-type model, created exception handling model, created online dynamic (runtime) development tools, etc.. Cross platform compatibility with Windows and Unix. Over 15,000 players. Hundreds of classes, over 300,000 lines of C/C++ code.

2/2000 – 11/2001

KORE, Inc.

Denver, CO

Senior Software Engineer

- Software architect for Mattel's Planet Hot Wheels Director Xtra development. Designed Macromedia Shockwave Director Xtra and interfaces exposed to Director engineers (Kore and Wayforward). Designed and coded multi-threaded model for asynchronous Xtra calls. C++, WinInet, Windows threading, Macromedia Director interfacing. Designed and coded addition multi-threaded security model.
- Lead software engineer for RemoteVideo project: designed, integrated and involved in development of all components for RemoteVideo's web enabled, multiplexer surveillance system. Server development for project: OCX (ActiveX), COM+ (IIS/MTS), C++, Java, SQL (stored procedures, DB design). Assisted engineers in development of additional components.
- Lead server engineer for NeonTonic: designed and implemented server-side components. COM+ (IIS/MTS), C++, VBScript, ASP and SQL development on Win2000 Server, XML message-passing
- Lead server engineer for mValue project: implemented WinNT server-side components in C++ and SQL.

6/1998 – 2/2000

Quark, Inc.

Denver, CO

Software Engineer 2

- Lead software engineer for QuarkLink. Coded with CEO Tim Gill.
- Re-architecture and implementation of Quark XPress toolbar. Created XTensible toolbar interface.

References References are available on request.