John P. Jones

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SUMMARY

Graduate level Computer Scientist with strong background in networks, security and cryptography, and systems software design. Seeking a challenging full-time position designing systems / developing software in a corporate environment.

EDUCATION

March 2005 *Master of Science, Computer Science*
University of California, Riverside

June 2000 *Bachelor of Science, Computer Science & Electrical Engineering*
University of California, Riverside (Summa Cum Laude)

PROGRAMMING SKILLS

C, C++, C#, Java, Python, Perl programming experience
Unix & Windows software development experience
XML, SOAP, ASP.NET, SQL, OpenSSL, Boost Graph Library, wxWidgets, Java Swing, .NET Windows Forms, Regular Expressions,
Event Driven, Object Oriented, Multithreaded and Distributed programming experience

SYSTEM DESIGN / ANALYSIS & RESEARCH SKILLS

Web Services, Object Oriented Design, Performance Measurement / Tuning, Secure Systems Design, Network protocol design, Cryptography, Database Schema Design, Stochastic Analysis, Data Mining, Algorithm Design.

COMMUNICATIONS AND TRAINING SKILLS

Experience presenting ideas to colleagues and laymen
Small team development experience.
Strong English language skills
Experience teaching and tutoring Computer Science

RESEARCH AND DEVELOPMENT EXPERIENCE

2004-2005 *Systems Design Consultant, (Independent Contractor) Dartmouth University*
Riverside, CA

Developed automated program for selecting PCR primers for use in generating constructs for targeted gene replacement. Developed automated program for selecting restriction enzymes to digest with to verify targeted gene replacement. Deployed online database of laboratory samples (LIMS - Laboratory Information Management System) with a web interface to track gene replacement constructs.

2001-2004 *Graduate Student Researcher, Dept. of Computer Science and Engineering*
University of California Riverside

Developed a probabilistic cryptographic key pre-distribution system for the initialization of low-power nodes in a mobile ad-hoc network (MANET) or sensor network. Design, analysis, construction and simulation of a distributed mutual exclusion algorithm optimized for mobile ad-hoc networks. Design and construction of an authenticated key distribution service based on the IETF's proposed DNS Security extensions (DNSSEC).

2000 *Computer Systems Programmer / Analyst, Dept. of Computer Science and Engineering*
University of California Riverside

Extended the Linux 2.4 kernel's process memory dump file format to include multiple threads' context in resulting core dump file to be read by GDB. Extension of Gcov & Gprof tools to split process information per thread.

1998 *Undergraduate Student Researcher, Center for Environmental Research and Technology*
University of California Riverside

Developed C program to implement a control loop for a hydrogen gas fueled internal combustion engine generating electricity to charge the electrical battery system on a hybrid electric vehicle.

Training and Instructional Experience

2000-2002   Teaching Assistant, Dept. of Computer Science and Engineering
University of California Riverside and University of California San Diego

General teaching classroom and lab responsibilities for compiler design, algorithms & data structures, and system administration courses. Maintained office hours, provided feedback to students on course progress, project development, and areas for general improvement.

1999-2000   Tutor, Computer Science / Electrical Engineering
University of California Riverside Learning Center

Basic tutoring responsibilities for students enrolled in various CS and EE classes.

Awards

- US Dept. of Education, Graduate Assistance in Area of National Need (GAANN) Fellowship 2001-2004.
- University of California, Riverside Electrical Engineering – Academic Program Excellence
- University of California, Riverside Recognition of Outstanding Academic Scholarship
- University of California, Riverside Outstanding Student in Engineering 1999-2000
- University of California, Riverside Dean's List Each Quarter
- Marlan and Rosemary Bourns Excellence in Electrical Engineering Scholarship Recipient.

Programming Language Experience

- C
- C++
- C#
- Java
- Python
- Perl
- VB.NET
- Matlab
- VHDL
- ML
- Prolog
- MIPS and x86 Assembly Languages

Research Experience

- Development of a probabilistic cryptographic key pre-distribution mechanism for nodes in a controlled ad-hoc/sensor network.
- Design and simulation studies of a new efficient distributed algorithm for providing mutual exclusion in a mobile ad-hoc network (MANET).
- Design and implementation of an Internet scale cryptographic key distribution system using DNSSEC proposals for securing the Internet DNS.

Design Project Experience

- Cache simulation program to analyze the effect of cache size and set-associatively on the miss rate of a cache memory implementing the Least Recently Used (LRU) replacement algorithm.
- Implementation of a software emulator for an 8051 microcontroller.
- Design and implementation of a prototype electronic book system. Designed using a combination of software running on an 8051 microcontroller and hardware circuitry designed in VHDL and running on a Field Programmable Gate Array (FPGA).
- Design and implementation of a file system for the Linux operating system.
- Software implementation of an OpenGL based "Space Invaders" type arcade game.
- Implemented a compiler for the 'Tiger' programming language for a subset of C similar to a classic three address load-store RISC architecture assembly language.
- Implemented an event based simulation in Java of a public transportation system and a process based simulation using the CSIM simulation package for C of a traffic intersection.
- Designed and Implemented a JPEG Decoder in VHDL.
- Extended Linux 2.4 kernel to perform a multithreaded core dump for debugging analysis with the GNU Debugger tool.
- Design and Implementation of a system to log system uptime data accumulated with Mon to a MySQL database and a CGI script for displaying this data graphically for performance analysis.
- Extended the GNU C Library and Linux Thread Package to allow profiling of multithreaded programs in Linux.
- Wrote a Branch Prediction Simulator to examine the effectiveness of several branch prediction algorithms.

Additional Education

2001-2004   Work towards Doctor of Philosophy, Computer Science
University of California Riverside (GPA: 4.00)

2000-2001   Work towards Master of Science, Computer Science
University of California San Diego (GPA: 3.94)

TECHNICAL COURSE EXPERIENCE

Graduate Computer Science Courses:

- Theory of Computation
- Introduction to Algorithms
- Introduction to Cryptography
- Logic in Computer Science
- Operating Systems
- Computer Networks
- Distributed Systems
- Programming Languages
- Advanced Compiler Design
- Introduction to Computer Architecture
- Advanced Computer Architecture
- Database Management Systems
- Data Mining
- Algorithms Computational Biology
- Pattern Recognition Bio-sequences
- Mobile Ad Hoc Networks Introduction
- Mobility in Ad Hoc Networks
- Advanced Topics in Modeling Simulation
- Stochastic Processes
- Computer Security (audit)
- Computer Animation (audit)
- Programming Language Design (audit)

Undergraduate Computer Science Courses:

- Introduction to C / C++ Programming
- Data Structures
- Computer Graphics
- Introduction to Algorithms
- Automata and Formal Languages
- Design of Operating Systems
- Introduction to Computer Networking
- Computer Security
- Modeling & Simulation
- Principles of Programming Languages
- Compiler Design
- UNIX Systems Administration

Electrical Engineering Courses:

- Electronic Circuits (2 quarters)
- Modeling / Simulation Dynamic Systems
- Signals and Systems (2 quarters)
- Introduction to Communications Systems
- Engineering Electromagnetics
- Automatic Control
- Digital Signal Processing
- Digital Communications
- Senior Design Project (2 quarters)

CS / EE Interdisciplinary Courses:

- Logic Design & Digital Systems (2 quarters)
- Advanced Microcomputer, Embedded Systems, Design (2 quarters)
- Design and Architecture of Computer Systems
- Introduction to Very Large Scale Integration (VLSI) Design

Mathematics Courses:

- Single & Multi-variable Calculus (5 quarters)
- Differential Equations
- Discrete Mathematics
- Linear Algebra
- Introduction to Probability and Statistics for Scientists and Engineers