Terence Tong

Contact
765 Weyburn Place, #115, Los Angeles, CA 90024
Phone: (510) 664-2712
Email: tmtong at ocf berkeley edu

Preference
Full Time Position in Operating System, Wireless Communication
Date Available: Not available
Location: California

Education
MS/PhD, Computer Science (Fall 2004 – Present)
University of California, Los Angeles, CA
Major: Computer Architecture
Minor: Network, Embedded Systems

BS, Electrical Engineering and Computer Science (Sep 2000 - Dec 2003)
University of California, Berkeley, CA
Cumulative / Technical GPA: 3.72 / 3.9
Emphasis: Operating System

Skills
Hardware: FPGA, VHDL, Altera Plus II
Scripting Language: Bash, Perl, Tcl, Python, Lisp, Matlab, PHP, SQL
Language: C, C++, Java
Library: POSIX, pthread, C++ STK
GUI: fltk, Matlab Gui, curses
Microcontroller: Atmel, Stamp

Courses
The Structure and Interpretation of Computer Program
Machine Structure
Efficient Algorithm and Intractable Problems
Foundation of Computer Graphics
Data Structure and Advance Programming
Operating System
Introduction to Communication Networks
Introduction to Database System
Programming Languages and Compilers
Advanced Operating System

Professional Experience
TinyOS Project, Senior Engineering Aide, UC Berkeley / Intel Research Lab (Summer 2002 - Spring 2003):

- TinyOS is a component-based runtime environment designed to provide support for deeply embedded sensors, which require concurrency intensive operations while constrained by minimal hardware resources.
- Blast: The goal was to design a modular, robust network layer for TinyOS above the AM Radio Stack. The architecture was designed so that problems like reliable transmission, statistical analysis, congestion, parent selection and traffic control could be solved separately. Individual component such as protocol, congestion algorithm, estimator, etc could be swapped with ease.
- Wireless Network Simulator: Designed and implemented a 2500+ lines Simulator in Matlab. The purpose was to create a platform for testing Ad-hoc Routing protocol before implementing into the motes (smart dust). It was designed to be scalable and modular. It generated benchmark and html statistical reports for research purpose.
- Duranet: efficient, adaptive, power scheduling algorithm for tree based wireless sensor network. The goal of the project was to maximize sensor sleeping time and avoid packet loss resulting from collision and hidden terminal problem. Alzheimer's main achievement was its low memory usage which was important for it to be scalable in practice.
- Deluge: multihop code dissemination protocol. The goal was to epidemically distribute code segments from one or more source nodes to all other nodes over a multihop, wireless sensor network. Co-designed and implemented the algorithm. Wrote bootloader to transfer input data segments to program memory for AVR Atmega128 processor.

- Mote Testbed: setup 100 sensor nodes testbed. Nodes were attached to Ethernet back channels to ease debugging. Ordered and assembled hardware parts, and wrote software (mostly bash scripts) to provide tools for developers to shorten debugging cycles.

Nachos Operating System:
- The Nachos operating system is an instructional course project. It simulates the hardware devices of a simple computer. It was written with 150 pages of Java source code.
- Project Phases includes multithread elevators simulation, BSD-like system call, virtual memory implementation, lazy loading, demand paging and a reliable, TCP/IP like Network Transport Protocol.

Cool Compiler:
- A C++ Compiler for a java like object oriented language
- Implemented lexer, parser, semantic checker, code generation and optimization
- Rank 3rd in class code optimization competition

Scene Language for Interactive Dynamic Environments:
- A language for describing and interacting with hierarchical, dynamic environments. It is written in 30000+ lines of C++ code.
- A general rendering pipelines featuring crystal ball interface, 3D parallel, perspective projection, backface, bounding box culling, scan conversion, z buffering, lighting, shading, procedural generation and rending, etc.

Postgresql Database:
- Postgresql was a database research project originated from UC Berkeley.
- Utilize Postgresql database for online Banking System written in PHP.
- Define new type and functions for data manipulation.
- Implement LRU, MRU, 2Q buffer replacement polices for Postgresql core.

Technical Coordinator Intern, Rescomp, UC Berkeley, CA (September 2000 – December 2000):
- Setting up a sample network with PC, Macintosh and UNIX clients, on an Ethernet based network with Unix based file and print server. Install and troubleshoot service on Unix server.
- Set up printing, network, netatalk, network file system, SQL student databases, pc-rdist services.

Publications

Taming the Underlying Challenges of Reliable Multihop Routing in Sensor Network, Alec Woo, Terence Tong and David Culler, ACM SenSys Nov 2003

DuraNet: Energy-Efficient Durable Slot-Free Power Scheduling. Computer Science Division Tech Report UCB/CS-04-1323, University of California at Berkeley, Terence Tong, David Molnar and Alec Woo; May 21, 2004

Awards

UCLA Graduate Fellowship
- $13000 of stipend + all school fee

National Science Foundation (NSF) Graduate Fellowship Award
- stipend for each fellow of $30,000 a year and education tuition for three year
- awarded to those eligible students who show potential for major contributions in science
- honorable mention

Vodafone Fellowship Award
- USD $6,000 scholarship for outstanding contribution to wireless research

Rensselaer Medal Award
- $15,000 scholarship
- a recognition of excellence in science and mathematics during their junior years in high school