

Mulin Cheng

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EDUCATION

M.S., Applied and Computational Math, California Institute of Technology (GPA – 4.2/4.0), Pasadena, CA June 2008

Courses Emphasis: Matrix Computation, Statistics, Optimization, Probability and Stochastic Modeling,
Numerical Partial Differential Equations, Stochastic Differential Equations, Markov Chains.

M.S., Mechanics and Engineering Sciences, Peking University (GPA – 3.7/4.0), Beijing, China July 2005

Courses Emphasis: Computational Fluid Dynamics, Turbulence, Nonlinear Dynamics, Modern Control Theory.

B.S., Mechanics and Engineering Sciences, Peking University (GPA – 3.8/4.0), Beijing, China July 2002

Courses Emphasis: Fluid Mechanics, Elastic Mechanics, Algorithm and Data Structure, Computer Graphics,

COMPUTER SKILLS

CFD & CAE software: Fluent, ICEM, Ansys, Star-CD, SolidWorks, Powerflow, Model-frontier, Pro-Am.

Programming languages: C++, C, Matlab, Simulink, SQL, Java, FORTRAN, CSS, Html

Programming environments: Parallel & Multi-thread, Linux, UNIX, Visual Studio

Packages and Libraries: MPI, PETSC, Lapack, Linpack

RESEARCH EXPERIENCE

Research Assistant, Applied and Computational Mathematics, Caltech, Pasadena, CA 2006 - present

- Applied stochastic variational numerical integrator to large-scale noisy circuits with fast switches.
- Used Monte Carlo Methods for comparisons, Multi-scale computation and Homogenization for acceleration.
- Implemented the computation-intensive parts by C++ which are linked to main program written in matlab.

Research Assistant, Computational Fluid Mechanics Lab, Peking University, Beijing, China 2002-2005

- Modeled and designed numerical algorithm to simulate insect flight. Based on this work, two papers were published and the **10th Peking University Challenge Cup** was awarded for excellence.
- Combined the Genetic algorithm and Fluent software to optimize the airfoil with **16% increase** on performance.
- Customized Fluent software by **Parallel C** code to handle body-fluid interaction problem such as transonic airfoil vibration and Completed massive parallel computations on IBM RS6000.

Honored Exchange Student, National Tsinghua University, Taiwan Summer 2001

- Designed fast parallel algorithm for heat conduction problem and implemented via MPI on Linux cluster.
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PART-TIME & SUMMER INTERNSHIP

Software Designer, Founder Space Time Co., Beijing, China Summer 2004

- Collaborated with hardware group, designed and implemented **multithreaded** software for a plane-based probing system and achieved real-time data acquisition, processing and visualization. Customers are impressed by the code robustness in flight test and continued to invest on the second stage of development.

CFD Consultant and Software Engineer, CD-adapco Co., Beijing, China 2001-2003

- Tested Star-CD software on engineering problems such as car internal and external flows, turbo-machine.
 - Worked on train air conditioner consulting cases, prepared reports and presented to industrial customers.
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HONORS AND AWARDS

Li Ming Scholarship at Caltech Summer 2007

Special Institute Fellowship at Caltech 2005-2006

Chun-Tsung Undergraduate Researcher supported by **Nobel Prize laureate**, Dr. Tsung-Dao, Lee, 2000-2002

ACTIVITIES

Vice President, Chinese Students and Scholars Association at Caltech 2007

- Organized Chinese New Year Festival party which was attended by about 300 people.