QI ZHANG

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PROFILE SUMMARY

- Expertise in algorithms, parallel, objective and oriented programming and distributed systems
- Proficiency in Java, C/C++ and Python
- Excellent in machine learning algorithms, machine learning APIs (i.e. TensorFlow)
- Knowledge of Hadoop, Spark and other distributed computing softwares
- Proficiency with SDLC tools: git and SVN

EDUCATION

University of Illinois at Urbana-Champaign, Urbana, IL   May 2014
Ph.D. in Aerospace Engineering   Research Topic: **Computational Science and Engineering**   **GPA 4.00/4.00**
Thesis: *Direct Numerical Simulation and Analytical Modeling of 3-D Honeycomb Acoustic Liners.*
Fudan University, Shanghai, China   July 2007
B.S. in Theoretical and Applied Mechanics (Minor: Computer Science)   **GPA 3.89/4.00**

PROFESSIONAL EXPERIENCE

Institute of Computational Engineering Sciences, University of Texas at Austin   Austin, TX
Research Associate   March 2016 – September 2017
Project: Machine learning approach in turbulence wall-pressure modeling

- **SU2 software developer** (SU2 is an open source code for computational fluid dynamics on parallel clusters)
- Implemented DES and LES/DES hybrid turbulent wall models and designed unit tests (C/C++)
- Wrote various post-processing tools (Python & Java) for data parsing and statistical analysis
- Speeded up high-fidelity simulation data generation 100+ times for machine learning studies at the Sandia National Lab

PSAAP2 Center, University of Illinois at Urbana-Champaign
Research Associate   Urbana, IL
                                                        March 2014 – March 2016
Project: Performance Analysis and Optimization of a High-Order MPI CFD Application

- Analyzed the performance of the in-house MPI large-scale parallel CFD solver using TAU and PAPI (hardware counters)
- Identified performance bottlenecks to be large quantity of memory accesses and the lack of vectorization
- Optimized the CFD codes and obtained a 50%+ reduction in the number of memory loads Intel Xeon E5-2680 processor

Project: Exascale Simulation of Plasma-Coupled Combustion (20 M USD funding)

- Developed a parallel 2-D/3-D compressible Navier-Stokes equation solver, 5,000+ lines with multiple features
- Improved large-scale data post processing 5+ times faster using novel algorithms in filtering non-physical data
- Jet-in-cross flow simulation results highlighted on the 2014 DOE PSAAP2 annual report

Project: Actuator type and placement for jet noise reduction

- Developed, tested and debugged a high-order finite volume numerical toolkit, 3,000+ lines
- Performed high-speed jet engine and aerodynamics flow simulations in different Linux supercomputing platforms
- Analyzed the simulation data in both time and frequency domain via Fast Fourier Transform (FFT)

Department of Aerospace Engineering, University of Illinois at Urbana-Champaign   Urbana, IL
Research Assistant   August 2008 – March 2014
Project: Liner eduction methodology using large-eddy simulation

- Analyzed the simulation data in both time and frequency domain via Fast Fourier Transform (FFT)
- Designed a highly-optimized ODE driven reduced-order models for acoustic liner in noise control

Teaching Assistant and Class Tutor (Data Structure and Algorithms)   September 2011 – May 2014

- Instructed and provided guidance for the students to their class projects (Java & C/C++)

PUBLICATIONS, HONORS & AWARDS

- 5 top journal articles and 15 conference proceedings (150+ citations)
- 2016 Institute of Computational Engineering Sciences Postdoc Fellowship (ranked 1st)