

Yi Zhuang

Curriculum Vitæ 2008

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Campus Address:

Bowdoin College

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P.R. China

Education

Bowdoin College, Brunswick Maine

B.A. in **Computer Science and Mathematics**, Summa cum Laude, **May, 2008**. G.P.A.: 4.0.

Awards:

George Wood McArthur Prize (2008)

Edward Sanford Hammond Mathematics Prize (2008)

The Computer Science Senior-Year Prize (2008)

Phi Beta Kappa (2008)

Almon Goodwin Phi Beta Kappa Prize (2007 for achieving the highest academic standing)

Freedman Summer Research Fellowship (2007)

Kibbe Summer Research Fellowship (2006)

Sarah and James Bowdoin Scholarship and Book Award (2005, 2006, 2007)

Sidney Wish and Bertha Wish Sipkin Scholarship (2004)

Research Experience

I/O-efficient map overlay for triangulations and low-density subdivisions

Freedman Summer Research Fellowship, Bowdoin College

January 2007 - Now

Started in spring 2007 as my honors project and continued into the summer working as a Freedman Research Fellow. Researched practical approaches to the map overlay problem in external memory. Implemented linear quadtrees for triangulations and general subdivisions. The map overlay problem can be solved I/O-efficiently by scanning the quadtrees of the two subdivisions. Experimented and showed that the algorithm for triangulations can handle large triangulated data sets with only a small amount of RAM (50MB). Currently focusing on the I/O-efficient map overlay of general subdivisions.

Computing Visibility on Terrains in External Memory

Kibbe Summer Research Fellowship, Bowdoin College

January 2006 - May 2007

Started in spring 2006 and continued into the summer of 2006 as a Kibbe Research Fellow. The basic problem in visibility is to compute the part of the terrain visible to a given observer. Implemented the two standard visibility algorithm for terrains that fits in memory and investigated their performance. Researched

and implemented a new approach to compute visibility in an I/O-efficient manner. The I/O-efficient algorithm is simple and practical and scales up to 4 GB terrains with as little as 256 MB RAM. Appeared in ALENEX/ANALCO 2007; Journal version submitted to JEA (March 2007).

AiboConnect and Aibo Vision

Bowdoin College Robotics Team, Bowdoin College

July 2005 - July 2006

Started in July 2005. Implemented the Java version of AiboConnect, a program designed to simplify the transition to advanced research with Sony Aibos. Worked with the Bowdoin robotics team and improved the vision system of our robot dogs for better object recognition and a faster frame rate. Participated in the RoboCup 2006 (Four-legged League) in Bremen, Germany. Our team placed in first 12 out 28 teams in Robocup 2006. In RoboCup 2007, our team beat last year's world champion and won the first place. Paper appeared in FLAIRS 2006.

Publications

Journal Articles

Computing Visibility on Terrains in External Memory. Herman Haverkort, Laura Toma and Yi Zhuang. In *ACM Journal of Experimental Algorithmics (JEA)*, to appear.

Refereed Conference Articles

Computing Visibility on Terrains in External Memory. Herman Haverkort, Laura Toma and Yi Zhuang. In *Proceedings of the 9th Workshop on Algorithm Engineering and Experiments / Workshop on Analytic Algorithms and Combinatorics (ALENEX/ANALCO 2007)*.

Conference and Workshop papers

AiboConnect: A simple programming environment for robotics. Chown, E., Foil, G., Work, H., and Zhuang, Y. In *The proceedings of the 19th International FLAIRS Conference (FLAIRS 2006)*.

Work Experience

Network Technician

Network Operations, Bowdoin College

September 2004 - August 2006

Supported and debugged systems and network issues. Assisted staff in supporting the campus IT infrastructure. Duties included account maintenance; data backup, administration and recovery; troubleshooting network port problems; responding to network and system service requests; installing/replacing network gear for growth and upgrades; first response for on-call support.

Trained and certified as Cisco Certified Network Associate (CCNA) in 2006.

Quantitative Tutor

Quantitative Skills Program, Bowdoin College

January 2005 - Now

Tutored individual students in mathematics and physics; conducted calculus workshops for physics classes. Certified by the College Reading and Learning Association / International Tutor Certification Program as a regular tutor.

Volunteer Chinese Teacher

Chinese American Friendship Association, Portland, Maine

January 2005 - July 2005

Volunteered to teach Chinese for the Chinese American Friendship Association of Maine in Portland.

Certifications

2006 Cisco Certified Network Associate (CCNA)
2006 Regular Tutoring Certificate

Skills

Computer Programing

Proficient with C/C++ and Java; familiar with 80x86 assembly, Perl, Python, and shell scripts; familiar with Subversion and CVS; knowledge of Lisp and Prolog.

Computer Networking

Familiar with operating Cisco switches, routers and other Cisco devices such as wireless access points.

Database

Familiar with SQL and MySQL.

Design

Familiar with web page design using HTML and CSS; familiar with Adobe Photoshop and InDesign.

Languages

Chinese (native tongue); English (fluent).