Francis Chang

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Objective

My professional goal is to research and develop the next generation software technologies for virtual worlds, multimedia streaming, distributed computing systems, mobile platforms and new user interface paradigms.

Education

Ph. D. in Computer Science and Engineering, 2014
Portland State University (Systems and Networking Lab)

- Dissertation: "Towards Constructing Interactive Virtual Worlds", 2014. Advisor: Dr. Wu-chi Feng
- Research involvement: multimedia visualization of 3D environments, network traffic analysis, packet classification algorithms, network processors and digital video analysis.
- Designed and instructed CS 199: Introduction to Video Game, OMSE 510: Computing Foundations, CS 510: Malicious Code and Forensics

Master of Science in Computer Science and Engineering, 2004
OGI School of Science & Engineering at OHSU (Systems Software Lab)

- Instructed CSE506/606 Programming Network Processors & various teaching assistant positions
- Recruiting, interviewing and management of undergraduate interns in SySL

Honours Bachelor of Mathematics in Computer Science, 2001
University of Waterloo

- Undergraduate research work with real-time volumetric rendering in the Computer Graphics Lab under Dr. Michael McCool.

Selected Publications

Virtual World Infrastructure

- Huaiyu Liu, Mic Bowman, Francis Chang. "Survey of State Melding in Virtual Worlds", ACM Computing Surveys (CSUR), Volume 44 Issue 4, Article No. 21, August 2012

Terrain Streaming

- Francis Chang, Wu-chi Feng. "Streaming Terrains", Proceedings of NOSSDAV 2007, June 2007

Packet Classification

- Francis Chang, Wu-chang Feng, Wu-chi Feng, Kang Li, "Efficient Packet Classification of Digest Caches", in Proc. of the Third Workshop on Network Processors & Applications (NP3), February 2004, Madrid, Spain.
- Francis Chang, Kang Li, Wu-chang Feng, "Approximate Caches for Packet Classification", in Proc. IEEE INFOCOM 2004, March 2004, Hong Kong.
- Kang Li, Francis Chang, Damien Berger, Wu-chang Feng, "Architectures for Packet Classification Caching", In proceedings of the 11th IEEE International Conference on Networks (ICON 2003)

Internet Gaming & Traffic Measurement

- Francis Chang, Wu-chang Feng, "Modeling Player Session Times of On-line Games", In Proceedings of NetGames 2003, May 2003.
- Wu-chang Feng, Francis Chang, Wu-chi Feng, Jonathan Walpole, "Provisioning On-line Games: A Traffic Analysis of a Busy Counter-Strike Server", In Proceedings of the Internet Measurement Workshop, November 2002.

Virtual Human Interaction

- Nick Yee, Jeremy N. Bailenson, Francis Chang, Dan Merget. (2006, in press). "The Unbearable Likeness of Being Digital: The Persistence of Nonverbal Social Norms in Online Virtual Environments". The Journal of CyberPsychology and Behavior.

Work Experience

Software Engineer, Summer 2014 - Present
Google Inc., Google Experience Team

- Engineer for the Google Experience team, designing interactive displays in physical spaces in Google Experience Centers

Computer Science Researcher, Summer 2008 - Spring 2009
Intel Corporation, Architecture Systems Lab

- Designed & Developed XPU (Extremely Partitioned Universe), an metaverse architecture research experiment framework written in C#
- Server development of OpenSimulator, an open-source virtual world in written in C#

Virtual World Content Developer, Second Life 2004-2008
Independent

- Virtual content design & development including programming, 3D modeling, texture art, animations, cinematography, managing contractors, marketing and business development
- Clients include General Motors Company, Toyota Motor Corporation, Nissan Motor Company Ltd., The Electric Sheep Company, and Millions of Us LLC.
- Undergraduate level teaching and workshop instruction
- Projects: Dominus Shadow, Seburo Compact-eXploder, Wet Ikon Roam& Franimation Override
- Charity work included campaign and event management, and content development for the Electronic Freedom Foundation, Heifer International, Red Cross, American Cancer Society and VERTU.

Research Assistant, Summer 2000
University of Waterloo, Computer Graphics Laboratory

- Developed prototype real-time volume rendering software, using programmable graphics hardware, for MRI and CT data

Software Designer, Winter 2000, Fall 2000
Proxinet Incorporated/Puma Technology Incorporated

- Developed a proxy-based wireless web browsing solution targeting PalmOS using Codewarrior C and Motorola 68000 assembly
- Server development on Solaris, using the Mozilla rendering engine

Software Design Engineer, Summer 1999
Microsoft Corporation

- Software development of Visual Studio: Visual Basic (Projects Team) using MFC/ATL/COM with Visual C++

Software Developer, Fall 1998
Corel Corporation, Bitmap Effects Team

- Development focussed on a library for raster image manipulation for Corel Draw and Corel Photo-Paint, targeting Win32 using MS Visual C++ and MFC

Software Designer, Summer 1997, Winter 1998
Thinkage Limited

- Development of compiler tools, including a proprietary macro language, and the ANSI C math libraries
- Developed a multi-threaded telnet application for remote shell and file management

Computer Programmer, Summer 1996
Adnet Information Systems Incorporated

- Developed a custom data-management application for Advanced Debt Technologies Ltd using Visual Basic using SQL & MS Access databases

References

References are available on request.