

Xi (Ma) Chen

Citizenship: Australian

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Skills:

High proficiency for C – 8 years exp.
High proficiency for C++ - 8 years exp.
High proficiency for Algorithm Design and Analysis - 8 years exp.
Proficiency in GPU Shader programming and design – 3 years exp.
Proficiency for Audio Mixing and Mastering – 7 years exp.
Familiar with Network Programming – 1 years exp.
Familiar with Digital Signal Processing – ½ years exp.
Familiar with HTML and PHP – ½ years exp
Experienced with distributed systems, search engine architecture, and large-scale server backends.
Experienced with microkernels & embedded systems (seL4).
Experienced with libraries: <ul style="list-style-type: none">• OpenGL / GLSL• Win32 GUI• OpenCV• Winsock / BSDSock• DirectX 9 / HLSL• Steinberg VST / STK Toolkit

Education:

Bachelor of Science (BSc) (Honours), Computer Science (Feb 2009 - Nov 2012 exp.)

University of New South Wales, Sydney, Australia

Current WAM: 76.682

Higher School Certificate, 2008

James Ruse Agricultural High School

Work Experience

Research Assistant - NICTA (Mar 2012 - Current)

Part-time Research assistance on SSRG/Kernel, working on benchmarking performance changes of removing cspace guards from seL4 kernel.

Software Engineer Intern - Google (Dec 2011 - Feb 2012)

SWE Intern on the Maps team, geo-monetization. Experience with formal code testing, design patterns, object oriented programming, systems design, distributed systems, RPC interfaces, front-end servers, web app services, web advertisement and monetisation.

Consultant - University of New South Wales (Mar 2009 - June 2009)

Consultant for 1st year computing course at UNSW.

Achievements & Prizes

- South Pacific Regional Champions at IBM ACM-ICPC World Finals, Orlando 2011.
 - Bronze Medal in International Olympiad in Informatics 2008 Cairo, Egypt.
 - 1st in ACM-ICPC South Pacific Regional Programming Contest 2010
 - 4th in ACM-ICPC South Pacific Regional Programming Contest 2011
 - 4th in CSE Undergraduate Performance Awards Year 2 Prize 2010
 - 2nd (equal) in CiSRa Student Project Prize Winner, 2009.
 - 1st in UNSW National High School CiSRA ProgComp, 2008.
 - 1st in UNSW National High School CiSRA ProgComp, 2007.
 - 1st Junior team, UNSW National High School CiSRA ProgComp 2005.
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Academic Projects

Screen Space Techniques For Subsurface Scattering (Current)

Honours thesis - researching applications of various new / existing screen space techniques to subsurface scattering in screen space, and looking into improvements in quality and/or speed.

Ambiance - Real-Time Graphics Demo (2011)

Ambiance is a real-time graphics demo, showcasing recent advanced techniques in the field of computer graphics. Developed in C++ using DirectX 9.0 with HLSL. About 10,000 lines of code, half of it shader code. This was my project for COMP3901 Special Project A at University of New South Wales, Semester 2 2011.



Notable Features:

- HDR
- GPU Volume Raycasting
- Real-time planetary atmospheric scattering
- Distance raymarched Julia set fractals
- Procedural terrain
- NVIDIA Skin Shader
- Chromatic dispersion
- Film grain
- MLAA (Morphological Anti-aliasing)

hyperSTACK - Polyphonic Chorus-based Software Subtractive Synthesizer (2010)

Polyphonic chorus-based software VST subtractive synthesizer. It is able to create a rich chorus effect by stacking up numerous oscillators, each with slightly different pitch, tone, and development.

Image Inpainter - GPU Accelerated Image Inpainting Tool (2010)

Tool that implements a number of algorithms to do the task of image inpainting. These algorithms take different approaches, and have various properties that make them suited to different types of image inpainting tasks. Texture-based methods can be (optionally) accelerated via CUDA.

OpenAssault - First Person Shooter Engine (2010)

Coded networked 3D first person shooter engine from scratch using C++/OpenGL. Uses Quake 2 BSP map and MD2 animated model file formats. Uses Winsock for networking and FMOD for sound. Also supports GLSL shaders and post-processing effects such as Screen-Space Ambient Occlusion (SSAO).

Personal Projects

Aeron - Air Combat Maneuvering Simulator

Minimalist air combat maneuver simulator developed in OpenGL/C++. Features accurate aircraft handling and dynamics, and advanced A.I., and network multiplayer. About 800 downloads per week from sourceforge. Winner equal 2nd of 2009 CiSRa Student Project Prize.

Handwriting Digit Recognition using Multi-Layer Perceptron Neural Network (2010)

Handwriting digit recognition, implemented using a straightforward multi-layer perceptron feed-forward back-propagation neural network.

DLX Sudoku Solver (2009)

Solves sudoku extremely fast using Donald Knuth's dancing links algorithm. It turns the sudoku problem into the exact cover problem with candidates and constraints, then searches recursively for a solution optimised using a 2D circular doubly linked array.

id Tech 3 (Quake Live) Demo Reader

Opens an id Tech 3 (Quake Live) demo and reads through the saved network packets for data.

MaestraVis (2009 - 2010) (Paid project)

Building a front-end GUI and 3D visualization tool for Maestra, used for ongoing research of the effects of nuclear radiation on trees and plantation at Macquarie University & University of Sydney.

Westpac - Register Sheet Automation (2011)

Developed Excel VBA macro script for Westpac to automate generating of register sheets.

Languages

- English, fluent
- Chinese (Mandarin), fluent (native)
- Chinese (Shanghainese), fluent (native)

Links

- <http://www.hypernewbie.com>
 - <http://au.linkedin.com/pub/xi-ma-chen/49/69/b42>
 - <http://soundcloud.com/hypernewbie>
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Academic Transcript

Semester 1 2009

		Units	Passed	Mark	Grade	
COMP 1917	Higher Computing 1	6.00	6.00	86	HD	
COMP 3821	Ext Algorithms&Prog Techniques	6.00	6.00	86	HD	HD
ENGG 1000	Engineering Design	6.00	6.00	69	CR	
MATH 1131	Mathematics 1A	6.00	6.00	58	PS	

Semester 2 2009

		Units	Passed	Mark	Grade	
COMP 1927	Higher Data Str. & Algos	6.00	6.00	79	DN	
COMP 9844	Ext Neural Networks	6.00	6.00	84	DN	
MATH 1081	Discrete Mathematics	6.00	6.00	63	PS	
MATH 1231	Mathematics 1B	6.00	0.00	41	FL	

Semester 1 2010

		Units	Passed	Mark	Grade	
COMP 2041	Software Construction	6.00	6.00	78	DN	
COMP 2911	Eng. Design in Computing	6.00	6.00	70	CR	
COMP 9018	Advanced Graphics	6.00	6.00	96	HD	

Semester 2 2010

		Units	Passed	Mark	Grade	
COMP 3331	Computer Networks&Applications	6.00	6.00	80	DN	
COMP 4121	Advanced & Parallel Algorithms	6.00	6.00	95	HD	
COMP 9517	Computer Vision	6.00	6.00	95	HD	
SOMA 3615	Sound Media 2	6.00	6.00	80	DN	

Semester 1 2011

		Units	Passed	Mark	Grade	
COMP 3411	Artificial Intelligence	6.00	6.00	72	CR	
SENG 4921	Professional Issues and Ethics	6.00	6.00	60	PS	

Semester 2 2011

		Units	Passed	Mark	Grade	
COMP 2121	Microprocessors & Interfacing	6.00	6.00	93	HD	
COMP 3421	Computer Graphics	6.00	6.00	87	HD	
COMP 3711	Software Project Management	6.00	6.00	62	PS	
COMP 3901	Special Project A	6.00	6.00	100	HD	
MATH 1231	Mathematics 1B	6.00	6.00	53	PS	

Semester 1 2012

		Units	Passed	Mark	Grade	
COMP 3891	Ext Operating Systems	6.00				
COMP 4141	Theory of Computation	6.00				
COMP 4910	Thesis Part A	3.00				
COMP 6731	Combinatorial Data Processing	6.00				
SOMA 3551	Sound Media 3	6.00				

3978 Computer Science Totals

WAM: 76.682 UNITS : 132.00 126.00