Experience

Principal Research Engineer – Technical Lead and Systems Architect   January 2014 to Present
Institute for Infocomm Research, A*STAR
- Co-PI for research collaborations with commercial companies (Tectus Group, SIA Engineering Company, ST Engineering Aerospace) and public agencies (DSTA, Ministry of Social and Family Development).
- Technical lead for proof-of-concept visual computing projects, typically developed from the ground up.
- Architected infrastructure and developed core components for Automated Aircraft Visual Inspection that has led to million-dollar collaborations with other companies.
- Projects mentioned in Parliament, featured in various news publications, and demonstrated to overseas delegates (military and commercial). See LinkedIn page for links to news publications.

Senior Software Engineer   July 2013 to December 2013
The Stakeholder Company
- Technical lead for Interactive Stakeholder Relationship Visualisation.
- Core developer for Stakeholder Information Management System.
- Both completed projects were marketed and sold to clients as part of multi-hundred thousand-dollar deals.

Research Engineer - Data Visualisation and Human-Computer Interaction   August 2010 to June 2013
Institute for Infocomm Research, A*STAR
- Technical lead for data visualisation and human-computer interaction projects.
- Led projects featured in the media, public events and international conferences.
  - Media: Agence France-Presse, The Straits Times, Channel News Asia, Digital Life, Today Online, Channel 8, Channel U
  - Events: TechFest 2012, X-Periment 2011, Singapore HCI Society Seminar
  - Conferences: WCS 2012, CHI 2012, SEANES 2012, SIGGRAPH 2011, VRCAI 2011
- Collaborated with industry partners and universities to build exploratory human-computer interfaces.
- Mentored university and polytechnic students through internships and final year projects.
- Represented the institute as an inter-school competition judge at Innovation Design Engineering (IDE) 2013.
- Integrated Agile software development methodologies to development processes (ScrumMaster certified).

Technical Lead and Consultant   April 2010 to July 2010
LiveMurals Interactive Pte Ltd
- Consulted start-ups and small-medium enterprises based locally and overseas on interactive installations.
- Introduced motion-sensitive webcam games to the casual gaming community.
- Created the world's first video chat music game – JABBO Live!

Software Engineer – Gaming Research and Development   March 2009 to March 2010
Atomic Gaming Innovations Pte Ltd
- Led the first multi-touch project, including directing the hardware and electrical engineering team.
- Developed a GPU-driven multi-touch detection library that is portable across off-the-shelf hardware, enabling rapid prototyping of multi-touch interfaces.
- Implemented a proprietary method to generate truly unpredictable seeds for random number generators (randomness verified and approved by BMM Compliance).
- Designed a multiplayer network library with peer-to-peer networking capabilities.
- Ensured gaming standards compliance with Casino Regulatory Authority of Singapore (CRA) and Gaming Laboratories International (GLI).
- Represented the company as a technologist to meet with potential investors at the Global Gaming Expo (G2E) 2009 in Las Vegas, Nevada.

Software Engineer – 3D Mining Software   July 2007 to February 2009
Maptek Pty Ltd (Australia)
- Created Smart Snap, a suite of predictive software tools to help clients save time and improve accuracy while drawing in 3D space.
- Introduced features of the Smart Snap suite to clients with an article featured in the company newsletter (Maptek TechSource).
- Worked with the development team to maintain, extend and research the Vulcan 3D package.
- Planned with the local software coordinator on projects, timeframes and development issues.

Education

Bachelor of Commerce	**Bachelor of Engineering (Honours)**
University of Western Australia	University of Western Australia
Majors: Corporate Finance, Investment Finance	Major: Information Technology
Minor: Financial Accounting	

Significant Projects

Automated Aircraft Visual Inspection
- Designed the system architecture enabling full scan of aircraft top surface with overhead cameras.
- Prototype currently installed in operational hangar.
- Demonstrated to various overseas delegates (military and commercial).
- Mentioned in Parliament, featured on Channel NewsAsia, Channel 5, and Aviation International News.

World Cities Summit 2012   (video link)
- Led development of three visualisation showcases at World Cities Summit 2012.
- Demonstrated at Institute for Infocomm Research's TechFest 2012.
- Featured on The Straits Times, Digital Life, Channel NewsAsia, Channel 8, and Channel U.

Interactive Stakeholder Relationship Visualisation   (video link)
- iPad application that enables high profile clients to visually discover key stakeholders before and during operations setup in a foreign country.
- Improved efficiency of clients' business development teams to build relationships with relevant decision-makers, ensuring project success.

Multi-touch Interface   (video link)
- Vision-based multi-touch surfaces built from the ground up for research, natural interface prototyping, and usability studies.
- Featured on Agence France-Presse, Today Online, and in A*STAR's STARhome.

Silhouette Interaction   (video link)
- Large-screen system that explores real-time interaction techniques using virtual silhouettes.
- Collaborated with Khoo Tech Phuat Hospital to explore the use of this technology for geriatric rehabilitation.
- Demonstrated at Institute for Infocomm Research's TechFest 2012.
- Presented in publications accepted at international conferences (CHI 2012, SIGGRAPH 2011)

Head Mounted Display Interaction Interface   (video link)
- Gesture-based interface for interacting with augmented reality objects shown on a head-mounted display.
- Presented in publications accepted at international conferences (SEANES 2012, VRCAI 2011)

Webcam Interaction   (video link)
- Browser-based webcam-interactive applications created to push the boundaries of mainstream human-computer interactivity.
- Developed interactive installations for Milo, Vanish Stain Remover, and Broadway Shopping Centre, Sydney.

Skills

Programming Languages

- C++, C#, Objective C, MQL4, Matlab, Python, JavaScript, CSS, ActionScript 3.0, PHP, SQL, XML, JSON, CUDA

Programming Frameworks / APIs

- Unity3D, OpenCV, PCL Library, ALGLIB, Orange Data Mining Toolbox, MetaTrader 4, Node.js, Socket.IO, jQuery, Android SDK, iOS SDK, Facebook API, Wowza Media Server

Others

- Agile Development Methodologies, Data Visualisation, Human-Computer Interaction, Machine Learning