Hao Tang

Kellyville NSW 2155, Australia

+61 416 362 181

haotang923@gmail.com

Australian Permanent Resident - Skilled Independent (Permanent) visa

I am an active software engineer with 10+ years of development experience (including 6+ years experience in IBM) and 3+ years experience in team leadership, blending problem solving capabilities with strong interpersonal skills. I am proficient in Python, C++, Database, Data Structures, and Algorithms Design and Analysis, and have good communication skills, teamwork skills, and project management capabilities as well.

EDUCATION

2004 - 2008	**Renmin University of China - Department of Computer Science & Technology, Bachelor of Engineering** Beijing, China

WORK EXPERIENCE

2018 - Present	**Senior Software Engineer,** Rio Tinto Centre for Mine Automation (RTCMA), Australian Centre for Field Robotics (ACFR), The University of Sydney Sydney, Australia

- ◆ Worked on Research & Development projects in Field Robotics to research, design, develop, build, test software with Python/C++/Java/PostgreSQL and field a range of exciting robotics technologies and information systems in the mining domain.
- ◆ Implemented a range of algorithms to improve the efficiency of mining operations at a fleet level to better use the mobile assets and plant equipment on the mine to achieve the dynamic mine plans. Designed, developed, built and tested simulator; ran simulations; analysed experiment results and documented the report.
- ◆ Involved in the CI/CD process (Jenkins, Bitbucket, Confluence and JIRA), containerisation technologies (AWS, Docker).
- ◆ Built AI (artificial intelligence) / Machine Learning prototype for implementing and supporting existing algorithms, and experienced the data science workflow: source data access, data processing and modelling, involving usage of Python NumPy / pandas / Bokeh / Matplotlib / scikit-learn libraries. Extracted source data; created data visualisations to analyse data and identify target label and relevant features; prepared data; processed data; selected models; trained and tested models; evaluated model performance, and plotted figures for comparison; optimised models; tested with various features to identify the most useful features; tested with various datasets, models and parameters to study the impact of performance.
- ◆ Created the first interactive equipment state plot, and leverage it to other teams/projects to improve work efficiency.
- ◆ Documented the first data modelling classification documentation to improve process.

2011 - 2017	**Staff Software Engineer,** DB2 database and OmniFind Text Search Server for IBM iSeries, IBM China Systems and Technology Lab (CSTL) Beijing, China

- ◆ Worked as the team leader of OmniFind team to lead three people and collaborate/communicate with both internal and external stakeholders. OmniFind is a text search product that allows IBM i users to search unstructured text stored in a column of a DB2 for i table, which has over 20 enterprise customers from America, Asia and Europe in the financial services industry. Answered customers' consultation,

gathered customers' requirements, broke down tasks, estimated workloads, led prioritization discussions and scrum meetings, owned and updated user stories to track progress closely. Developed demos and presentations to introduce OmniFind to customers in COMMON user conference and IBM i Study Tour.

◆ Led and developed the IBM i OmniFind with C++/Qshell/SQL/Java/Python, added enhancements based on customers' requirements and DB2 database enhancements, and updated its user guide. Worked with the Agile methodology (SCRUM), and experienced the full software development life-cycle : requirements capture and analysis, estimation, detailed software design, object-orientated software implementation, unit and system-level testing, installation and deployment.

◆ Led and fixed IBM i OmniFind Continued Programming Support (CPS) problems, tested and delivered fixes, and developed fix chain documentations to improve process.

◆ Published the article *Introduction to IBM i OmniFind (ECM Text Search component) upgrade* on IBM developerWorks to help customer to gain benefit of product upgrade. Documented the CPS MustGather documentation to improve CPS communication efficiency.

◆ Led and participated in the DB2 Function Verification Testing (FVT)/Regression Testing of various Line Items with SQL/C++. Experienced the full life-cycle testing, and tested with Agile and Waterfall development methodologies. Applied efficient ways to track FVT with DB2 web query reports (business intelligence and analytic platform) well. Documented FVT Test Case Formalization Guideline to improve testing process in Agile mode. Developed tools to convert old cases to SQL scripts to achieve higher efficiency. Led to refine the Regression Testing Process, and created SQL scripts to improve testing efficiency.

◆ Worked as the owner of daily reporting tools to maintain and document resource management tools recording resource usage and issue grabber tools grabbing issues from database for report, and develop web query reports for business needs.

◆ Published the disclosure *System and method to share information in social network based on mining chat message and browsing history*, and articles *Application of DRDA on IBM i* and *Application of TRUNCATE TABLE on IBM i* on IBM developerWorks, and the article *Making System Triggers Caller Aware* on IBM i blog.

◆ Obtained the certification of IBM Certified Database Associate -- DB2 9 Fundamentals.

2009 - 2011	**Software Development Engineer in Test,** hiSoft Technology International Ltd, IT software and business process outsourcing service provider Beijing, China

◆ Worked as a SDET (Vendor) in BizTalk project team in Microsoft. BizTalk is Microsoft's Integration and Connectivity Server Solution.

◆ Worked on testing of BizTalk products : created cases, did Automatic and Manual Testing, filed and fixed bugs, and did High Available Testing, Safe Domain Testing etc.

◆ Developed web site/tools to improve team work efficiency.

2008	**Software Development Engineer,** Precision Imaging Systems**,** Software Development Company focused on Medical Imaging Applications Beijing, China

◆ Worked on design, development and documentation of the software PreciseView with C++/C# : researched and created generation standard of DICOM (Digital Imaging and Communications in Medicine) Tags and UIDs for PreciseView; implemented file operations, invoking DLL etc.

◆ Optimized the ChangeWWWL Algorithm to reduce time consumption by 75% and memory consumption by 50%.

◆ Tested and documented the performance of Aware J2K SDK and others.

RESEARCH EXPERIENCE

2007	**Chinese University of Hong Kong** - Research Group of Professor Jeffrey Xu Yu in Department of System Engineering & Engineering Management Hong Kong, China

- ◆ Junior Research Assistant. Collaborative research on the query optimization of XML
- ◆ Nan Tang**,** Jeffrey Xu Yu**, Hao Tang,** M. Tamer Őzsu**,** Peter Boncz **:** *Materialized View Selection in XML Databases(full paper)*, **DASFAA' 09** (Database Systems for Advanced Applications, an annual international database conference**)**

  Studied XML Views Selection for Materialization Problem**.** Based on a well organized graph structure for maintaining a minimal set of candidate views**,** we presented two heuristic algorithms for view selection**.**

  Programmed in C++ with STL and Boost library to parse the XPath strings**,** build a lattice structure for all views by joining multiple queries**,** estimate the size of query with Berkeley DBXML**,** design and implement algorithm to materialize view selection in XML Databases. Finally designed and conducted the experiment, and studied the performance.

2007 - 2008	**Renmin University of China** - Research Group of Associate Professor Qing Zhu in Data Engineering and Knowledge Engineering Lab Beijing, China

- ◆ Key Lab of Education Ministry of P.R. China
- ◆ Research on the query optimization of XML, clustering and opinion mining.

HONORS

2004 - 2006	Bronze Medal, The **ACMICPC** Programming Contest **(**The ACM International Collegiate Programming Contest) – Beijing / Shanghai / Xi'an
2004	Recommended to **Renmin University of China**
2002	First Class in Hunan Province, National Olympic Informatics Competition(**NOIP)**

INTERESTS

2009	Attained **3 Keub** in the **Tae Kwon Do** Promotion Test
2007	**Captain and Striker of School Football Team**

- ◆ Led 04 team to take the second place in School Football League Match

2006 - 2007	**Leader of ACMICPC Team of Renmin University of China**

- ◆ Organized exercises and routine reports; led team members to attend contests
- ◆ Successfully organized the 2007 Collegiate Programming Contest in Renmin University of China

2005 - 2006	**Minister of Sporting Ministry in Students' Union of Information School**

- ◆ Collaboratively organized 2005 and 2006 Sporting Game of Renmin University of China

2004 - 2006	**Associate President of Computer Association - Top 10 Associations in Renmin University of China**

- ◆ Successfully organized the 2006 Computer Carnival; held the competition of Computer Assemblage
- ◆ Held lectures for National Computer Rank Examination; trained association members