
Summary of Qualifications

- Strong technical leader with passion for hard problems and investing in the future.
- Proven ability to build and structure agile technical teams, define vision and lead delivery.
- Experienced software architect: Designed, reviewed and mentored high throughput, distributed, fault tolerant systems at Amazon scale.
- SDE at heart: strong coding / problem-solving ability, passion for test driven development, continuous deployment and moving fast.
- Broad technical experience covering distributed systems, computer vision, applied research, game development and data visualization.

Skill Highlights

TECHNICAL

- Fluent in Java, C++, C#. Additional projects in Python, Javascript, Octave / Matlab.
- Experience writing projects for **AWS cloud** (DynamoDB, SQS/SNS, S3, SWF), **big data** (Spark, EMR, ELK stack, Hadoop), **graphics / gaming** (Unity, OpenGL, DirectX, CUDA) and **web** (Spring MVC, REST, Google Web Toolkit)
- Development toolchain: Eclipse, Git, Maven, CMake, JUnit, Mockito, JMockit
- Advocate for best practices (TDD, CD, YAGNI, EYODF)

MANAGEMENT

- Managed technical teams, managers and engineers through weekly 1-on-1s and metric reviews.
- Developed talent through continuous performance management, promotion and SBI feedback.
- Active participant in hiring, interviewing and sourcing candidates: conducted 100+ technical interviews.

LEADERSHIP

- Lead by example, and lower barriers to 'doing the right thing' (e.g. proper testing)
- Effective leader during fast-paced, high impact situations: led teams through Q4 war-rooms and regularly acted as Operational Excellence Call leader during high severity incidents.
- Instill high bar for quality through regular review and deep dive on team deliverables.

Work Experience

MACHINE LEARNING PRINCIPAL | RANK SOFTWARE INC | APR. 2016 – PRESENT

- Drive vision, research and development for machine learning projects to automate cyber security analysis.
- Designed and built a configurable ML analysis pipeline to detect and explain network anomalies, using Spark.
- Created a network simulation framework to replay configurable scenarios for system testing and demos.
- Interview and supervise Rank interns in ML projects for anomaly detection using Spark and Tensorflow
- Contribute technical and machine learning expertise for grant and patent writing.

SOFTWARE DEVELOPMENT MANAGER | AMAZON | SEPT. 2013 – APR. 2016

- Managed 3 teams, created vision and structure while hiring, developing and promoting top technical talent.
- Identified and drove opportunities for operational improvement: reducing high severity issues by 35%.
- Developed and executed on a vision for the Pick Platform team: eliminated technical debt while continuing to deliver new business value through innovative projects.
- Held team to high technical bar through review and deep dive of software architecture and implementation.
- Drove a \$MM cross-team project to improve short resolution, and validated savings with stakeholders.
- Increased scope in Toronto through migration of Seattle responsibilities to Toronto teams.
- Onboarded and coached new managers to become effective leaders at Amazon.

- Designed and developed a managed operational alarm configuration system as side project using AWS: adopted by 60+ teams across the company.

SOFTWARE DEVELOPMENT ENGINEER | AMAZON | FEB. 2012 – SEP. 2013

- Designed, implemented and validated a guaranteed, distributed and high throughput notification stream for picking data model using AWS SQS and SNS.
- Developed shared testing library and frameworks to remove barriers to adoption of integration testing and continuous deployment across the fulfillment department.
- Regularly provided design / code reviews and mentorship of distributed systems projects on my team.
- Designed and implemented distributed high throughput data store to support WW fulfillment operations using DynamoDB and S3, as part of a small team.

IMAGE ANALYSIS RESEARCH | SUNNYBROOK HEALTH SCIENCES | MAY. 2009 – APR. 2011

- Developed a novel tumour delineation algorithm, employing a statistical PET imaging atlas created by deformably co-registering 100 patient images.
- Authored technical sections of oncologist grant submissions and provided preliminary research results.
- Designed and implemented medical image analysis tools for cancer treatment response analysis.

LEAD SOFTWARE DEVELOPER | MATH I CAN DO SOLUTIONS INC. | NOV. 2007 – JAN. 2012

- Developed GUI, document management and payment systems for Math Education web application using Google Web Toolkit, Java, PHP and MySQL.
- Maximized ease of use and user experience through close collaboration with domain experts.

VISUALIZATION DEVELOPER | UNCHARTED | MAY. 2005 – AUG. 2006

- Developed large scale visual analytics and service integration platform for intelligence analysis.
- Integrated with external natural language processing services and drove integration testing.
- Analyzed application performance characteristics to improve UX, eliminate bottlenecks and scale platform.

Education

MASTERS APPLIED. SCIENCE, MEDICAL IMAGE ANALYSIS

SIMON FRASER UNIVERSITY

SEPT. 2006 – APR 2009 (WITHDRAWN IN GOOD STANDING)

- Research Focus: Segmentation and analysis of PET data (active contours, graph cuts, kinetic modelling)
- TA-ships: Intro. to computer graphics, advanced computer graphics, professional responsibility and ethics
- Related courses: medical image analysis, human computer interaction, parallel computing

HONORS B. MATH, COMPUTER SCIENCE

UNIVERSITY OF WATERLOO

SEPT. 2000 – APR. 2005

- Co-op placements: Maritime Life Assurance (1 term), ATI/AMD (3 terms), Electronic Arts Canada (1 term)
- Related courses: Intro. to computer graphics, distributed systems, special topics in computer graphics

Projects and Publications

I enjoy having an independent programming project to work on and learn from. I have pursued side projects in computer graphics, gaming and augmented reality. Details and screen shots of this work can be found here: <https://ben-codes.com>.

I am an author on scientific research papers spanning automated medical image analysis, oncology and computer graphics. A full list of publications is available here: <https://ben-codes.com/publications>.

In the summer I brew beer, which is an interesting engineering problem in its own right.