

# NICHOLAS ARMSTRONG

SOFTWARE LEADER | MASC, EIT  
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## SUMMARY OF QUALIFICATIONS

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- Experienced software leader with a focus on solving complex engineering problems end-to-end – from the technology (multiple patents) to the real world (frequently visit customers)
- Focus on startup-scale companies – building teams, establishing the engineering culture, and designing the initial product architecture and development systems
- Expert knowledge of software development with emphasis in cloud services, mobile & web apps, networks, web application performance, and products that combine hardware and software
- Frequent coder – I like to get hands-on alongside my team. Recent: Docker, Angular, node.js, Power BI
- My personal software leadership runbook includes:
  - Leading architecture workshops to clarify the problems to solve and share knowledge
  - Reducing complex systems to intuitive diagrams – often drawing “live” to create progress
  - Using data visualization tools to summarize progress or identify areas to improve
  - Documenting engineering principles and using them as the basis of 100% code review
  - Using high-fidelity prototypes to improve design and guide decision making
  - Planning for change and operations from the outset to minimize cost as the product evolves
  - Using or creating development tools to maximize focus and minimize error
- Deep knowledge of networks and their effect on application performance; my thesis work developed a technique for decreasing web page load times over mobile (3G/4G) connections
- Hobbyist cook, maker, curler, and avid learner

## UNIVERSITY EDUCATION

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### MASTER OF APPLIED SCIENCE

MAY 2009 – SEP 2011

UNIVERSITY OF WATERLOO – ELECTRICAL AND COMPUTER ENGINEERING

- Thesis topic: *Accelerating the Mobile Web: Just-In-Time Push Prefetching*

### BACHELOR OF APPLIED SCIENCE

SEP 2004 – APR 2009

UNIVERSITY OF WATERLOO – HONOURS COMPUTER ENGINEERING, WITH DISTINCTION - DEAN'S HONOURS LIST

## AWARDS AND DISTINCTIONS

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### ALBERT SHERWOOD BARBER AWARD

JUNE 2009

FOR BEST OVERALL WORK TERM AND ACADEMIC PERFORMANCE

### ROCKWELL AUTOMATION CANADA AWARD

MAY 2008 – AUG 2008

FOR BEST WORK TERM REPORT, 4<sup>TH</sup> YEAR COMPUTER ENGINEERING

### GERRY HECKMAN SCHOLARSHIP

MAY 2008 – AUG 2008

FOR ACADEMIC PERFORMANCE AND EXTRACURRICULAR ACTIVITIES

**BERNIE ROEHL AWARD**  
FOR ACADEMIC PERFORMANCE AND EXTRACURRICULAR ACTIVITIES

**JAN 2007 – APR 2007**

**FACULTY OF ENGINEERING ENTRANCE SCHOLARSHIP**  
FOR ACADEMIC PERFORMANCE

**SEP 2004 – DEC 2004**

**GOVERNOR GENERAL'S ACADEMIC MEDAL (BRONZE)**  
FOR HIGHEST AVERAGE UPON GRADUATION FROM A SECONDARY SCHOOL

**JUNE 2004**

## **WORK EXPERIENCE**

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**DIRECTOR OF SOFTWARE**  
CARNEGIE TECHNOLOGIES

**FEB 2016 – FEB 2020**

- Led a global team of software engineers to develop Carnegie's Network Convergence, Internet-of-Things (IoT), and Satellite platforms
- Founded engineering culture – wrote developer handbook and performance review rubrics, designed engineering systems (Gerrit, GitLab, JIRA, Jenkins), set code review standards, mentored developers and team leads
- Hands-on leadership: actively developed in JavaScript/TypeScript (node.js/React/Angular), Docker/Kubernetes, Java (Android), C# (.NET/WPF), and Power Query/DAX (Power BI/Excel)
- Travelled to support Carnegie's business activities, from conference presentations to on-site customer integrations

### **KEY ACHIEVEMENTS**

- Established the technical hiring process and grew team from 5 to 34 (+50 contract), with low turnover
- Designed the software architecture for two greenfield products – SatBridge and Longview IoT – across native and hybrid mobile applications, scalable web services running on Kubernetes, and applications for embedded devices
- Co-directed Kitchener office: build-out, IT systems, new employee onboarding, snacks and drinks, team building

**VP ENGINEERING**  
**LEAD PROGRAM MANAGER**

**OCT 2012 – FEB 2016**  
**MAY 2009 – OCT 2012**

PRAVALA NETWORKS (KITCHENER-WATERLOO, ONTARIO)

- Responsible for all engineering activities, from hiring and technical leadership to the design and implementation of Pravala's mobile and automotive products
- Manage customer projects, with responsibility for all project aspects including requirements, schedule, architecture, development, delivery, and customer relationship
- Code Pravala's horizontally-scalable policy management server (built with node.js and PostgreSQL), web management console (HTML5/LESS/backbone.js), and Android client interface (Java)
- Often support sales activities, present to customers, analyze competing products, and discuss product strategy
- Work directly with potential customers to demonstrate product capabilities and understand market needs

### **KEY ACHIEVEMENTS**

- Represent Pravala in engagements with OEMs, automotive Tier-1s, and major telcos in the United States, Malaysia, Japan, Hong Kong, Indonesia, and China
- Supported Pravala's successful \$9.4m Automotive Supplier Innovation Program grant from the Government of Canada, including project definition and periodic project progress reports

## PROGRAM MANAGER (PM) INTERN

MICROSOFT CORPORATION (REDMOND, WASHINGTON)

SEP 2008 – DEC 2008

- Managed the development of a WPF/Windows 7 sample application featuring multi-touch and ribbon integration for the 2008 Microsoft Professional Developer's Conference
- Created developer tools and documentation for photoSuru, the photo subscription sample application I developed in my previous term with Microsoft in preparation for its release
- Surveyed line-of-business (LOB) application frameworks available for WPF as part of an effort to develop a strategy for LOB applications on the Microsoft .NET client platform

### KEY ACHIEVEMENTS

- Provided on-site support for the .NET Corporate VP's keynote demonstration of the WPF/Windows 7 sample to the 6,000 attendees present at PDC 2008
- Drove photoSuru's release to web (with full source code) at [www.photosuru.com](http://www.photosuru.com)

## SOFTWARE DESIGN ENGINEER (SDE) INTERN

MICROSOFT CORPORATION (REDMOND, WASHINGTON)

JAN 2008 – APR 2008

- Developed photoSuru, an occasionally-connected photo viewing application, to demonstrate the highly differentiated experiences developers can create using WPF
- Assisted the WPF test team in testing new features of WPF to identify bugs prior to the release of .NET 3.5 SP1
- Designed and developed 'photoSuru 360°', a version of our existing sample application optimized for the Microsoft Surface to test the adaptability of existing WPF applications by running them on Surface using the Surface SDK

### KEY ACHIEVEMENTS

- Primary developer on photoSuru, a developer sample released by Microsoft in December 2008

## SOFTWARE CONSULTANT

SYSTEMGROUP, INC. (MISSISSAUGA, ONTARIO)

AUG 2006 – AUG 2007

- Responsible for developing various solution components using a range of Microsoft technologies in cooperation with clients and other consultants
- Lead the development of a public website refresh for a not-for-profit organization by researching content management systems that would integrate with their existing infrastructure, developing the site based on their specifications, and deploying the website using DotNetNuke
- Supported the sales team by developing prototypes for potential clients using ASP.NET and CSS

### KEY ACHIEVEMENTS

- Designed the user interface for a wealth management system developed for a large Ontario credit union

## ADDITIONAL EXPERIENCE

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### MAKERCLUB VOLUNTEER

THEMUSEUM (KITCHENER-WATERLOO, ONTARIO)

OCT 2015 – PRESENT

(VOLUNTEER)

- Assist with monthly club for children as they learn maker skills - electronics, mechanics, art, repurposing, and more

### ACADEMIC REPRESENTATIVE

FOR THE COMPUTER ENGINEERING CLASS OF 2009 (8 STREAM)

MAY 2006 – MAY 2009

(VOLUNTEER)

- Acted as a liaison between the Department of Electrical and Computer Engineering and the Computer Engineering class of 2009 (8 stream), providing feedback to improve the quality of the undergraduate program

### MICROSOFT STUDENT PARTNER

FOR THE UNIVERSITY OF WATERLOO

SEP 2007 – DEC 2007

- Promoted Microsoft technologies and products to students on the University of Waterloo campus by sponsoring student-run events and hosting technical demonstrations

### TECHNICAL DIRECTOR

UW ENGINEERING DRAMA PRODUCTION

JAN 2005 – APR 2007

(VOLUNTEER)

- Designed the sound and lighting layout for the Engineering Society Drama Production and supervised the tech crew

### PDENG STUDENT REPRESENTATIVE

FOR THE COMPUTER ENGINEERING CLASS OF 2009 (8 STREAM)

MAY 2006 – AUG 2006

(VOLUNTEER)

- Acted as a liaison between the administrators of the PDEng program and the Computer Engineering class of 2009 (8 stream), providing feedback to improve the quality and value of the PDEng program

### PROGRAM DEVELOPMENT

GREATER TORONTO AIRPORTS AUTHORITY (TORONTO, ONTARIO)

JAN 2006 – APR 2006

- Designed and developed a web application using ASP.NET/C# to tabulate training requirements and course completions for Facilities staff to ensure that all workers were up-to-date in their training and certifications

### SOFTWARE DEVELOPMENT

HYDRO ONE NETWORKS, INC. (BARRIE, ONTARIO)

APR 2005 – SEP 2005

- Developed tools to monitor the performance of operations planning using Visual Basic and Microsoft Access

## CERTIFICATIONS, MEMBERSHIPS, AND PATENTS

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**ENGINEER IN TRAINING**, Professional Engineers Ontario

**CANADA PATENT #2791523**, Accessing Local Network Resources in a Multi-Interface System

**US PATENT #9769116**, Encapsulating traffic while preserving packet characteristics

**US PATENT #9838319**, Encapsulation system featuring an intelligent network component

**US PATENT #10212494B1**, Method and system for monitoring physical assets

**US PATENT #10242547B1**, Method and system for monitoring livestock

**RADIO OPERATOR'S CERTIFICATE (AERONAUTICAL)**, Industry Canada

THIS CV IS ALSO AVAILABLE AT [www.nicholasarmstrong.com/portfolio](http://www.nicholasarmstrong.com/portfolio)