

## MATTHEW JOHNSON MA (CANTAB) PHD

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### LEADING ARCHITECT AND ENGINEER IN IIOT & HIGH-PERFORMANCE ANALYTICS

Experienced and driven software professional with 15+ years' expertise in development, architecture, and team leadership specializing in high-performance, multi-threaded micro-service-based platforms. Driving strategic direction and leading feature development for product and leading an R&D transformation to a hybrid cloud containerized CI practices. Looking to make a difference in a tech leadership role, solving problems that matter, and working with a lively and enthusiastic team.

#### KEY CAPABILITIES

15y C++ inc C++20 | 15y Python | 20y Java | Full SDLC | Performance and Security | Proprietary DSL  
Compiler creation & optimization | C | SQL | Linux/Windows Sysadmin/Devops | AWS | Docker | Kubernetes |  
Git | Github | Ansible | Gitops | Shell Scripting | Copilot/OpenAI | Agile (Scrum & Kanban) | Design Thinking |  
Systems Architecture | Product Design | Leadership | Mentoring & Development | Hiring and onboarding |  
Technical Writing and Presentation

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### PROFESSIONAL EXPERIENCE

**Software Architect, Software AG**

**May 2018 – present**

[https://www.softwareag.com/en\\_corporate/platform/iiot.html](https://www.softwareag.com/en_corporate/platform/iiot.html)

Architect leading designs for the core high-performance streaming analytics engine in best-of-class IIOT platform. Technical lead for features across multiple agile teams, including senior development and review roles. Leading system administration for R&D systems including on-prem, containerized and hybrid-cloud. Planning and architecture roles extend across multiple product areas.

#### *Specific Achievements:*

- Personally ran a complete R&D infrastructure rebuild and recovery for the Apama team after a significant cyber attack, restoring productivity and the ability to deliver customer fixes faster than the rest of the company.
- Designed features to enable customers to improve performance of their code running in the platform by 800%, with 200% default configuration improvement.
- Lead and implemented a devops transformation for R&D to hybrid cloud and containerized IaC in Kubernetes and AWS using gitops workflow.
- Independently produced functional language extensions to the proprietary DSL.
- Cross-product architecture lead for rearchitecting the input processing layer for the platform.

**Principal Software Engineer, Software AG**

**July 2013 – May 2018**

C++, Java and Python engineer leading a team to design and deliver features. System administration for R&D systems. Technical recruitment interviews, new hire onboarding and mentoring. Specialized in performance and security aspects of the high-performance native runtime.

#### *Specific Achievements 2017-2018:*

- Lead a project to update compilers and platforms to move to modern C++ Language features.
- Added containerized deployment for the product to enable customer migrations to cloud.
- Proposed, designed and delivered Python integration to the proprietary DSL to support ML/AI.
- Technical interviewing and onboarding of Cambridge-based hires.

#### *Specific Achievements 2014-2016:*

- Concepted, designed and delivered declarative, multi-threaded, multi-language and multi-platform Python-based build system ([github.com/xpybuild](https://github.com/xpybuild)) to unify product builds.
- Replaced build and fix delivery system.
- Wrote an automated performance analysis tool for monitoring and improving product performance.
- Designed and built in-process connectivity and integration for the platform, reducing latency and improving deployment architecture.

**Senior Software Engineer**, Progress Software

**May 2008 – July 2013**

C++, Java and Python developer on world-leading, high-performance, multi-threaded realtime streaming analytics platform. Delivering features on time and with high quality and debugging tricky concurrency and performance issues in the platform.

*Specific Achievements 2011-2013:*

- Designed and built declarative stream-based language extensions to the proprietary DSL and underlying runtime.
- Delivered a compiled backend for the proprietary DSL using LLVM for high-performance language execution with benchmarks similar to natively-compiled C++ and Java.

*Specific Achievements 2008-2010:*

- Designed and built an interactive debugger for the proprietary DSL.
- Proposed, built and delivered Java extensions to the DSL.

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## EDUCATION

**Doctor of Philosophy**, Trinity Hall, University of Cambridge **2004 – 2008**

Field: Computer Science, Thesis Topic: Consumer Security Devices for Internet Banking

**Master of Arts**, Trinity Hall, University of Cambridge **2001 – 2004**

Computer Science Tripos

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## PATENTS

**Second-order tuning of spin loops**

US9262233B1

**Issued Jan 2016**

**Multi-user in-memory queue for multi-threaded and/or multi-process computing architecture**

US2024012645A1

**Filed Dec 2022**

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## PUBLICATIONS

**A Real-World Application of Secure Multi-Party Computations** **Apr 2008**

Presented at the 16<sup>th</sup> International Workshop on Security Protocols

[2008-JohnsonOwen-duplimate.pdf](#)

**A New Approach to E-Banking** **Oct 2007**

Presented at the 12<sup>th</sup> Nordic Workshop on Secure IT Systems

[2007-Johnson-ebanking.pdf](#)

**Usability of Security Management: Defining the Permissions of Guests** **Apr 2006**

Presented at the 14<sup>th</sup> International Workshop on Security Protocols

[2006-JohnsonSta-Guests.pdf](#)

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## ORGANIZATIONS/PROJECTS

**UK Magic Officials Ltd**

Founded an organization to train and support tabletop game officials

**Dec 2023 – present**

<https://magicofficials.uk>

**Magic: The Gathering Level 3 (Premier) Tournament Judge**

Responsible for managing teams of judges at the highest level tournaments across the world and for local

judge development within the program.

**Dec 2012 – present**

<https://blogs.magicjudges.org>

**English Bridge Union Congress A Tournament Director**

National tournament and rules expert responsible for running bridge tournaments across the UK.

Certified by the European Bridge League as a National Tournament Director

**Apr 2009 – present**

<https://www.ebu.co.uk>

**Xpybuild**

Co-authored a fast, cross-platform, cross-language Python-based build system

**Feb 2017 – present**

<https://github.com/xpybuild>

**dbus-java**

The Java binding for the dbus system bus on Linux

**Dec 2006 – Jan 2010**

<https://dbus.freedesktop.org>

**Debian**

Debian Developer, designed and built the Java packaging framework

**Dec 2006 – Jan 2011**

<https://www.debian.org>