

Todd Hughes

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Summary of Qualifications

- **Senior Quantitative Software Engineer** and **Enterprise Architect** with **25+ years** of commercial and enterprise application development experience creating secure, stable, mission-critical solutions
 - **Proven leadership** skills, such as advising senior management on vision and strategy regarding legacy, as well as emerging, technology; performing customer, client, and executive presentations/meetings; and training teams and mentoring junior developers on established best patterns and practices
 - **20+ years** of extensive experience in C#.NET programming, 4+ years of experience in Objective-C, and 3+ years of Python
 - Experienced in **distributed**, scalable, **n-tier architectures** using object-oriented design (OOD) principles, with implementations including server- and client-based applications (desktop, web, and mobile)
 - Proficient in **full software development lifecycle** (SDLC) and **full-stack** development using **agile** methodologies—from analysis and design to implementation, testing, deployment (CI/CD), and documentation—both technical and end-user
 - Skilled Database Administrator (**DBA**) with **22+ years** strong relational database (RDBMS) design, programming, tuning, and administration experience using **SQL Server**
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Technical Profile

- Languages/Standards: C#, Python, PySpark, Objective-C, Transact-SQL (T-SQL), JavaScript, TypeScript, VB.NET, Classic Visual Basic, JSON, CSS, XML, HTML, RSS, .NET Standard, OAuth 2.0, SAML 2.0
 - Web APIs/Cloud Services: Amazon Web Services (AWS), Microsoft Azure, Snowflake
 - Databases/Warehouses: Microsoft SQL Server, Snowflake, Elasticsearch (OpenSearch), PostgreSQL, MySQL, S3
 - Operating Systems: Windows Server, Windows, Mac OS X, iOS, Linux
 - Technologies: .NET Core, ASP.NET Web API, ASP.NET MVC, WinForms, Razor, AJAX, ADO.NET, Web Services
 - Tools: Visual Studio, PyCharm, Xcode, ReSharper, WebStorm, Octopus, Postman, Fiddler, Shibboleth, Jupyter Notebook
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Professional Experience

Senior Quantitative Engineer (London Stock Exchange Group (LSEG) / XTF / Yield Book) **May 2016 – Present**

- Created data delivery pipeline for Fixed Income MBS (Mortgage-Backed Securities) data and analytics. Used AWS Step Functions, Glue Jobs, and Lambdas for ETL, while utilizing Snowflake data warehouses to store and analyze data. Re-engineered software product, using **Python** and ML (**Machine Learning**), to build model for TBA pool creation.
- Designed and developed **cloud-based API** to deliver ETF (Exchange Traded Fund), Securities, and Index analytics and historical data to Wealth Management Platform. Utilized ASP.NET Web API with .NET Core/Standard, combined with test-driven development (**TDD**) principles, to create a cross-platform, **microservices** architecture. Deployed to AWS (Amazon Web Services) Lambda serverless environment to facilitate scalability, high performance, and availability.
- **Collaborated with quant team** to streamline and optimize SQL Server database processes which load, parse, and analyze ETF and Securities pricing, performance, and fundamentals data. Defined, prioritized, and executed steps to identify and eliminate performance bottlenecks due to inefficient T-SQL queries, indexes, stored procedures, and legacy database architecture. **Trained** team on database best practices and optimization strategies.
- Assisted and **advised** XTF CIO/CTO with planning and execution of migrating self-managed, on-premises infrastructure to an AWS, cloud-based environment. **Coached** multiple development teams on and established best practices for using AWS resources for data pipelines and processing. **Mentored** junior developers and performed code reviews to improve product quality and process reliability and efficiency. **Performed interviews** with potential candidates to ensure team cohesiveness.

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Co-founder, CTO, & Senior Architect (Givsee Inc.)

October 2012 – May 2016

- Architected and developed complete **mobile- and web-based** fundraising and payment platform for nonprofit industry. Worked closely with CEO and COO to create strategic direction and develop product roadmap. Performed market and competitor analysis, as well as client interviews, to combine an optimal market fit with an exceptional user experience (UX).
- Developed public-facing websites for donors, customers, and employees using ASP.NET MVC with C#.NET. Used jQuery to assist with cross-browser compatibility and to increase responsiveness using asynchronous requests. Created responsive web design and layout using Twitter Bootstrap.
- Created **RESTful API** with ASP.NET MVC that allowed for effective mobile application integration using JSON and allowed for secure transmission of payment and transactional data. Integrated online transaction processing (OLTP) with application tier using Authorize.Net CIM and AIM APIs to facilitate payments and provide secure, atomic transactions.
- Developed native iOS/iPhone **app** using **Objective-C** to consume API. Worked closely with Chief Design Officer to implement UI requirements, and created custom UI controls to uniquely enhance product design.
- **Hired and managed** contract developer to create Android-based version of mobile application. Set development objectives and timeline, while ensuring necessary resources to help team reach goals.
- Designed and implemented backend using Microsoft SQL Server, along with indexed views and stored procedures. Integrated Elasticsearch using NEST to improve real-time, full-text search (FTS) capabilities. Performed entire server, database, IIS, and SSL administration and configuration for websites and API.

Senior Software Engineer & Consultant (Verray Corporation)

March 2010 – October 2012

- Created publishing and distribution platform to launch the first online magazine dedicated to International Emergency Medicine using C# and MySQL. Created public API to facilitate integration with partner websites.
- Designed and developed job recruiting platform for industry-leading journal. Integrated API into existing, Joomla-based website using jQuery and JSON. Created **eCommerce** shopping cart using C# and ASP.NET for online purchasing of ads.
- Created native iOS photography app using Objective-C within Xcode. Managed entire App Store approval process to deliver a globally-sold product.
- Tuned SQL Server **T-SQL** stored procedures, user-defined functions, and triggers for high-speed, high-volume **prescription dispensing system** to increase performance and remove deadlocks. Created SQL Agent Jobs with C# **CLR** stored procedures to automate remote pharmaceutical drug database updates through FTP.
- Installed, managed, and monitored SQL Server databases for on-site, cloud-based, and shared servers. Created reports for customers to evaluate traffic and usage patterns from database-stored analytics and IIS logs. Produced database disaster recovery and contingency plan and documentation for customers.

Senior Developer (Sharp BancSystems, Inc.)

May 2002 – March 2010

- Developed business-critical **multi-tier**, distributed check scanning system to facilitate cash letter exchange between the **Federal Reserve**, image exchange vendors, and banks using C# and Remoting. Updated **Remote Deposit Capture (RDC)** application that enabled branches and customers to scan, proof, and balance items.
- Designed and implemented the **Check Image** data warehouse application that fully automated item exchange and settlement between the core accounting and imaging systems. Generated and exchanged data in the financial industry-standard ANSI **x9.37** format and the Federal Reserve Common Output Format (COF).
- Created bank statement application to generate reports based on the **OFX** (Open Financial Exchange) format and substitute checks/IRDs (Image Replacement Documents) based on the x9.90 specification. Utilized a **Service-Oriented Architecture (SOA)** with C# Web Services to provide statements to online banking systems.
- Designed, created, and maintained mission-critical **relational databases** for all client banks and branches. Developed horizontally **partitioned** databases for performance and scalability. Served as SQL Server **Database Administrator (DBA)** to develop maintenance routines and disaster recovery plans.

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Developer (Center for Values Research, Inc.)

September 1996 – May 2002

- Designed, developed, and implemented an **n-tier** Customer Management database application hosting 10,000+ HR clients, utilizing Classic **VB** and **DCOM** for security and scalability.
- Created online surveys to eliminate data collection errors of paper-driven surveys. Utilized Classic ASP (Active Server Pages) to generate dynamic e-survey content, with DHTML and JavaScript for client-side validation.
- Upgraded and optimized Employee Attitude Survey data analysis application by migrating legacy flat-file data formats to SQL Server. Increased marketability of company's services with expanded, custom reporting options.

Additional Professional Experience

- **Head of Digital Business Development (Emergency Physicians International)** **May 2012 – February 2018**
Served in an advisory role to the Founder and Publisher to assist in digital business development strategies to increase revenue. Advised on technical and software solutions regarding long-term enterprise architecture.
- **CTO/Advisory Board (Best Fashion Friend)** **June 2013 – July 2015**
Served in an advisory role to the CEO to set strategic and long-range plans regarding technology. Acted as a liaison between management team and offshore developers to streamline development efforts and clarify goals.

Education and Professional Development

- Southern Methodist University: B.A., Magna Cum Laude (Psychology)
- AWS Certified **Machine Learning** – Specialty (MLS)
- AWS Certified Solutions Architect Associate
- AWS Certified Cloud Practitioner
- Microsoft Certified Solutions Developer (MCSD)
- Microsoft Certified Database Administrator (MCDBA)