Richard Anthony Hein

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SUMMARY

Senior full-stack software developer and cloud architect with over 25 years of experience in building scalable applications, leading R&D projects, and designing AI-driven solutions. Expertise in multiple programming languages, frameworks, and cloud technologies. Proven success in delivering enterprise scale web sites and web templates for customers, LLM and traditional AI applications, blockchain-based applications such as payment integration, digital publishing solutions, and real-time AI agent systems. Highly skilled in full-stack development, including AI integration, security, cryptography, cloud infrastructure, and blockchain technologies.

RECENT EXPERIENCE

EntangleIT Inc— *Founder and CEO / Senior Software Architect – Freelance and Contract work*
March 2017 – Present | Ottawa, ON

- Founded EntangleIT Inc., which was once AuditAnywhere Inc., and prior to that was DBSoft. Providing full-stack software development, on many mobile and web applications, AI, and blockchain solutions for clients since 1998.
- Key achievements:
    - Developed many full-stack software solutions, from requirements gathering to production.
- Open source and EntangleIT internal projects:
    - Developed an open source Generative AI conversational chatbot with RAG for the Swarms Agent AI framework using Redis for vector storage.
    - Currently working on a P2P GPU marketplace and various AI/ML-based applications using NextJS, React, Phoenix LiveView, Docker, and AWS.
    - Led the development of "Memento," a Git-controlled conversational AI system, and prototyped AI-powered inventory control with AR tracking using Swift.
- **MyMovies.us** contract work (*March - December 2024*):
    - Bitcoin integration with a micropayment solution, allowing users to pay per second of watched videos.
- **Roofstock.com** contract work (*January - May 2025*):

- ○ Developed 2 AI conversation chat agents for a contract with Roofstock. One integrated with Slack and a knowledge base back end. The second bot was used to generate recommended tasks in a real estate application.
- Python, C#, Typescript, Javascript, React, Elixir, Haskell, SQLite, PostgreSQL, Redis, SQL Server, Azure, AWS, HTML, CSS, and much more.

Cognilore Inc — *Senior Full Stack Software Engineer, Generative AI Tech Lead – full-time*
Sept 2021 – Feb 2024 | Ontario, Canada

- Technical lead developer for Cognilore's LLM RAG Generative AI chatbot system ("Project Professor") for digital publishing. Led a team of 3 other developers.
- Architected solutions involving UI, middleware, and backend for large-context digital publications and technical manuals.
- Enhanced cross-platform e-reader applications using C# and React.
- Worked on Generative AI integration to provide multimodal chatbot features.
- Delivered end-to-end solutions for large-scale digital publishing and complex technical manuals.

- Python, LangChain, Docker, LLAMA 2, StableDiffusion, React, ChromaDB, SQL Server, OpenAI.

Leonovus Inc — *Senior Full Stack Software Engineer – Blockchain (contract)*
April 2018 – May 2018 | Ottawa, ON

- Designed blockchain-based solutions for data storage and computation using Hyperledger, Ethereum, and Bitcoin.

TITUS — *Senior Software Engineer – Blockchain (contract)*
July 2017 – Oct 2017 | Ottawa, ON

- Worked on blockchain-based document security systems under NDA.

Sitecore (CommerceServer.net) — *Senior Full Stack Software Engineer – full-time*
Nov 2013 – Dec 2016 | Gatineau, QC

- Sitecore acquired CommerceServer.net from Cactus. So, I was on the same development team since 2010.

- Developed and improved Sitecore Commerce Server systems with AWS/Azure cloud deployments.

- Implemented CI/CD best practices with the Release Manager.

- Led engineering improvements and migration to modern build systems (CoreXT to MSBuild), improving build times from hours to 7 minutes.

Cactus/Ascentium/SMITH — *Full Stack Engineer – full-time*
July 2010 – Nov 2013 | Gatineau, QC

- Member of Microsoft Commerce Server R2 team

- Led the migration of the legacy codebase from C++99 to C++11 and from legacy .NET Framework to the latest version.

- C#, C++, Javascript, SQL Server, ASP.NET, Azure, AWS

STaCS DNA Inc — *Senior Full Stack Software Engineer – contract*
Mar 2008 – Mar 2010

- Developed DNA sample tracking and processing software used by agencies like the FBI and RCMP.
- Built complex Windows Forms applications on SQL Server architecture.

- C#, Windows Forms, SQL Server

OTHER EXPERIENCE

AuditAnywhere Inc — *Founder / Developer*
May 2007 – Feb 2010 | Ottawa, ON

- Created SaaS solutions for occupational health and safety (OSH) compliance, and developed software for various clients under contract.

Transportation and Safety Board — *Senior Full Stack Software Engineer – contract*

Aug 2007 – Mar 2008

- Developed SharePoint portals and web services for the Transportation and Safety Board (TSB).

- C#, HTML, CSS, Javascript

TrialStat Corporation — *Senior .NET Developer – full-time*
Sept 2005 – Mar 2007

- Led the development with 2 other developers of the cryptographic key exchange system. Built secure, field-level encryption systems for clinical trial data, including escrow key management solutions.

- Javascript, HTML, CSS, C#, SQL Server, SSIS

Avanade — *System Analyst / Software Developer – full-time*
Dec 2002 – Sept 2005

- Technical Lead for Canada Post Address Management System (AMS), Letter Carrier Case Labelling System (LCCLS) and other enterprise systems for other clients. Led the team including 2 other developers.

- On the AMS Architecture Team, analyzing customer requirements, dealing directly with stakeholders, and developing specifications for later development.

- Lead a team of 3 developers, creating a custom tool with a user editable interface partially generated using AI, in particular simulated annealing, to lay out graphically, the mapping of addresses to letter-carrier case labels.

- C#, Visual Basic .NET, SQL Server, Oracle, Javascript, ArcGIS, BizTalk

LPI Level Platforms Inc — *Senior .NET Developer – full-time*
Feb 2001 – Dec 2002

- LPI was a start-up in Ottawa that eventually sold its intellectual property to many cloud providers.

- Developed networked agent systems for one of the world's first managed service provider platforms, and precursor to the cloud.

- Lead developer of the network wide event processing expert system, using Microsoft Message Queuing (MSMQ) and near real-time event handling.

- Mentored junior developers and coordinated activity with QA.

- C#, ASP.NET, SQL Server, MSMQ, some HTML/CSS/Javascript

DBSoft — *Founder / Software Developer*
May 1998 – Feb 2001

- Created mobile and desktop applications for health, safety, and security industries.

- Sole developer of a mobile app for tracking fire fighting inventory, with alerts for scheduled maintenance, a mobile and HTML/SQL Server based app to track occupational health and safety violations.

- Developed document processing software to convert scanned PDFs into HTML.

- Visual Basic .NET, C#, SQL Server, MS Access, MS Excel, VBA, HTML

EDUCATION

- **University of New Brunswick** — B.Sc. Computer Science (1992 – 1994)

- **Dalhousie University** — (Transfer) B.Sc. Neuroscience (1994 – 1997)

- **Carleton University** — (returned later) B.Math (CS), Mathematics (2006 – 2007)

TECHNICAL SKILLS

- **Programming Languages**: C++, C#, Python, Javascript, TypeScript, Visual Basic .NET, HTML, CSS, Haskell, Elixir
- **Frameworks**: ASP.NET Framework, ASP.NET Core, NextJS, React, Phoenix LiveView, FastAPI
- **Tools**: Git, LangChain, ChromaDB, Redis, SQL Server, Hyperledger, LLMs, AWS, Azure, CI/CD

PATENTS & CERTIFICATIONS

- *Method for Security and Privacy in Medical Forms* (Patent)
- *MCSD.NET Certification*

AWARDS & HONORS

- Nominated as one of the "Most Helpful Niners" at Microsoft MIX'11, for contributions to the Channel9 Microsoft Developer Network (MSDN) forums where we discussed everything to do with software and learned from the top talents in the industry.