

## Brian Hetrick

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### Summary

Experienced software systems program and team lead; experienced software systems architect and engineer; specialty expertise in distributed systems, data security, hard and soft real time systems, embedded systems, medical systems, and mechatronics.

### Program Lead Skills

- Introducing and maintaining process manageability including dependency identification and tracking, earned value analysis, process and work product completion criteria, intermediate deliverables, and root cause analysis
- Tracking and communicating status, identifying and correcting deviations from plan, identifying and recovering from problem occurrences
- Eliciting business concepts, needs, and risks from managerial and operational personnel
- Translating business operational and strategic needs into technical requirements, specifications, and plans
- Identifying business, technical, and process risks, creating project plans, and acquiring stakeholder and development team buy-in
- Surfacing conflicting expectations, creating consensus among stakeholders regarding goals, roles, costs, and acceptable risks

### Team Lead Skills

- Full life cycle including initial conceptualization, requirements analysis, specification, design, implementation, unit and system testing, acceptance testing, deployment, active enhancement and support, legacy status support, and product retirement
- Creating consensus among technical stakeholders as to overall function, architecture, and constraints
- Introducing and maintaining performance- and reliability-enhancing processes including Agile methodologies, formal inspections, design and code reviews, change control, and unit tests
- Encouraging and aiding team formation and maturation
- Encouraging and maintaining continuing professional development, cross-training, technology transfer, and expertise transfer

### Individual Contributor Skills

#### Systems Engineering

- Design, implement, and repair complex multi-component systems exhibiting sophisticated emergent behavior in challenging environments through combining hardware, software, and communications
- Collaboration among project owners/managers, development management, developers, QA, user information, packaging, and deployment
- Hard and soft real time

#### Software Engineering

- Agile, waterfall, V, W development processes
- Windows, POSIX base systems, bare metal
- Expert in C 89, C#/.NET Framework
- Fluent in C++, Java SE
- Interfacing managed and unmanaged code
- Desktop (GUI), console (CLI), service (no UI) applications and components
- Windows included services

#### Embedded Engineering

- Microcontrollers, single board computers, resource constrained environments
- SPI, I<sup>2</sup>C, RS-232, RS-485, CAN, CANopen, USB
- Digital and limited low-frequency and DC analog design
- Sensors, effectors, state modeling, homeostasis, goal seeking behavior

#### Enabling Technologies

- Database (SQL Server, Oracle DBMS, SQLite, NoSQL; triggers, stored procedures)
- Web services (REST, SOAP, WCF, XML, HTML)
- Networking (TCP/IP, Windows), message queueing

#### Specialty

- Encryption, data transport security, data storage security, data access security
- Medical systems, HIPAA compliance, clinical criteria
- Software-controlled mechatronics
- Windows soft real time, multithreading, eventing
- Open source use in a proprietary environment

## Brian Hetrick

### Recent Employment History

#### 2018: Jacobs Software Engineering Center (contract)

Business: US DoD Contractor

Role: Senior Developer

Achievements: Diagnose and repair defects in existing unclassified product. Plan, design, implement enhancements to existing product. Refactor existing product for maintainability.

Technologies: .NET Framework, ADO.NET, C#, log4net, TFS, VMware, Windows 7, Windows 10, WPF, XML

#### 2017-2018: BirdsEyeView Aerobotics, LLC

Business: Autonomous flying robots/sensor platforms

Role: Senior Developer

Achievements: Envision, plan, design, implement next generation ground station software. Assist design, characterize, and debug flight control software. Assist design, characterize, and debug payload hardware and software. Maintain and enhance existing ground station software (flight mission planning, flight mission transmission to aircraft, ground sensor data capture and interpretation, mission execution control, data capture, data return, data interpretation). Mentor less experienced engineers. Engineering support IT operations. Business support IT operations.

Technologies: .NET Core, .NET Framework, ArduPilot, C, C#, C++, CAN, Cortex M4, DirectX, Ethernet, Git, hard real time, I<sup>2</sup>C, log4net, Linux, MEF, Mercurial, Mission Planner, Mono, MonoGame (open source XNA Framework), NUnit, NuttX, PixHawk, radio DDL, RAID, Raspberry Pi, Raspbian, RS-485, SPI, SQLite, SubVersion, USB, UWP, VirtualBox, Visual Studio, VMware, WiFi, Windows 7, Windows 10, WinForms, WPF, x86, XML

#### 2014-2016: Segway, Inc.

Business: Electric vehicles; autonomous ground robots

Role: Senior Developer

Achievements: Develop new service and manufacturing support hardware and software tools. Develop new service and manufacturing service tool test hardware and software. Specify and develop customer-facing API for robotics platform. Maintain and enhance existing service and manufacturing support hardware and software tools. Mentor less experienced engineers. Engineering support IT operations. Business support IT operations.

Technologies: .NET Framework, ADO.NET, ASP.NET, BITS, BugZilla, C, C++, C#, CAN, CANopen, ColdFusion, ESE, hard

real time, I<sup>2</sup>C, log4net, MEF, MPLAB-X, MSMQ, MySQL, NHibernate, NLog, NUnit, Oracle DBMS, P/Invoke, PRISM, Rabbit MQ, REST, Silverlight, SOAP, soft real time, SPI, SQL Server, SubVersion, Unity, USB, Visual Studio, WCF, Windows Services, WinForms, WPF, XAML, XML

#### 2011-2014: IntrinsicQ/International Oncology Network Solutions/AmerisourceBergen Specialty Group

Business: Medical oncology practice support

Role: Technical lead; senior developer

Achievements: Maintain and develop medical oncology practice support system. Diagnose and repair complex interactions. Propose, design, and implement user experience additions and database support. Re-factor subsystems for increased reliability and maintainability. Mentor less experienced engineers. Train junior developers.

Technologies: .NET Framework, ADO.NET, C#, HL7, LINQ, NUnit, Remoting, SQL Server, TFS, Visual Studio, VMware, WCF, Web services, Windows, Windows Server, Windows Services, WinForms, WPF, XML

#### 2010: A123 Systems, Inc. (contract)

Business: Advanced lithium batteries

Role: Minion (Developer, Engineering Services)

Achievements: Extend existing application to new user base and functionality. Design and implement user experience additions, database additions, business object wrappers. Extend existing application architecture. Repair and re-factor existing application.

Technologies: ADO.NET, C#, ClickOnce, .NET 4.0, LINQ, SQL Server, SubVersion, Visual Studio, WCF, WinForms, XML

#### 2007-2009: Goss International Americas, Inc.

Business: Web press and post-press equipment

Role: Senior Project Engineer

Achievements: Lead team formation for new next-generation newspaper post-press planning system. Help design and implement next-generation newspaper post-press planning system. Help maintain, enhance, and extend existing newspaper post-press planning system and existing post-press control system.

Technologies: .NET Framework, ADO.NET, ATL, C#, C++, COM, cppUnit, hard real time, MSMQ, NDoc, NHibernate, NUnit, soft real time, SQL Server, TCP/IP, Visual Studio, WPF, Windows, Windows Server, Windows Services, XML

## Brian Hetrick

### Professional Associations

- IEEE
- IEEE Computer Society
- PMI

### Education

- Master of Science in Engineering (Mathematical Sciences), Johns Hopkins University, Baltimore MD
- Bachelor of Arts (Mathematics), College of the Holy Cross, Worcester MA

### Self-Contained Work Samples

[The Event-Based Asynchronous Operation Pattern in .NET](#)

[Interface Technology-Independent Applications](#)

[A Real-Time Application Framework for the Freescale HC08 Microcontroller Family](#)

[The Singleton Pattern in .NET](#)