

# Abdul Habra

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## BIOGRAPHY

- Over thirty years of technology experience with more than 20 years of leadership.
- Roles: Inventor, Public Speaker, Mentor, Architect, Project Manager, Agile Technical lead, Researcher, Designer, and Programmer.
- Technologies (Expert level): High Performance Distributed systems, Java, JavaScript, Web Technologies, Agile Development, Functional Programming, Object Orientation, Machine Learning, RDBMS, Rule-Based/Metadata systems.

## TECHNICAL EXPERIENCE

- OS X, Unix, and MS-Windows.
- Software:
  - Java (27 years), including Maven, Ant, Spring, Hibernate, JPA, JMS, JEE, JUnit, Selenium, Spark Java, RESTful services.
  - JavaScript (17 Years): EcmaScript6/7, Webpack, EsBuild, Desktop & Mobile browsers, Server (Node, Phantom, Express), Single Page Apps (SPA), React, AngularJS, Web Components/Custom Elements, jQuery, Jasmine, Mocha, Jest, MathJax.
  - Database: MongoDB, SQL, JDBC, ODBC, MS-SQL Server, IBM DB2/UDB, MySQL, Oracle.
  - Internet: HTML5, HTTP, JSON, Ajax/Fetch.
  - Other Languages: Elixir (1 Year), Scala (6 Month), Groovy/Grails (6 Month), Delphi (3 Years), C (5 Years), C++ (3 Years), Ruby (6 Month).
- Technologies:
  - Methods: Functional Programming (FP), Agile (XP) and Iterative, Scrum, Test Driven Development (TDD), Behavior Driven Development (BDD), OO A/D/P, UML, Design Patterns, SOA.
  - Distributed Systems: PCF, GCP, Multi-Tiered architectures, Client/Server, Internet/Intranet/e-Commerce applications.
  - Rule Based/Metadata engines analysis, design, and implementation.
  - Languages and Compiler analysis, design, and implementation. Used Lex, Yacc, Antlr.

## PROFESSIONAL HISTORY

**Charles Schwab (formerly TD Ameritrade), Director/Principal Architect, Ann Arbor MI, 2015-current Architect and Tech Lead for High Throughput Systems**

- Allow handling more than 50K requests per second, with about 1 millisecond requestPayload processing time.
- Mentor engineers to understand how to build high performance, scalable, and reliable systems.
- Technologies used: Java 21, Maven, Avro, Chaos testing, Solace/MQTT, Google Cloud Platform (GCP), Pivotal Cloud Foundry (PCF).

**Architect and Tech Lead For East Asia Systems**

- Enable account opening and trading for clients in East Asia. Support multiple locales and national regulations.
- Mentor engineers to become better craftsmen/women. Introduced Git, TDD, CI/CD, microservices.
- Technologies used: Java 8, Spring, Maven, AngularJS, PCF, microservices.

**Architect and Tech Lead For Robo Advisor Team**

- Enable casual investors to invest based on their preferences like risk tolerance, length of investment, ...
- Upgraded system to use simpler architecture and less code, which saved cost of upgrades and maintenance.
- Technologies used, Java 8, Spring, Maven, JavaScript, React, Webpack, Cypress, microservices.

## **Senior Researcher in the Advanced Technology/ R&D Group**

- Created a system for multi-factor authentication using biometrics.
- Created a system for high speed multi-client messaging.
- Created a system for real-time monitoring of social networking using NLP and Sentiment analysis for early detection of TDA systems issues.
- Created an intelligent system for human-machine vocal interaction; somewhat similar to Alexa or Siri but with better financial capabilities. US patent #10,217,260 was issued for some of my work.
- Technologies used: Java 8, JavaScript, Elixir, Tomcat, Spark Java, HTML5, Speech I/O, Node, Spring, RabbitMQ, Lucene, Stanford NLP (Natural Language Processing), Apache NLP, Neural Networks/Deep Learning, MongoDB, Amazon Web Services (AWS).

## **Pillar Technologies, Independent Contractor, Cincinnati Ohio, Jan 2008-Jan 2015**

### **Tech Lead at a Book/eBook Publisher**

- Created systems which allowed instructors to grade students and view their grades (Gradebook)
- Created systems which allowed students, instructors, and researchers to read and review books online.
- Applied TDD, Scrum, and high test coverage.
- Technologies used: SPA, JavaScript, Angular, Grunt, Jasmine, Java, RESTful services, MongoDB, Jenkins, OSGi, Karaf/Aetos, ActiveMQ.

### **Tech Lead at a Food Distributor**

- Created systems which allowed managing inventories and lists for customers.
- System allowed users to customize their inventory levels and thresholds, create comparative pricing and quotes.
- Applied TDD, 2-weeks iterations, and 90%+ test coverage.
- Technologies include: Spring, JPA, Struts-2, JUnit, Yahoo YUI, JQuery.

### **Tech Lead for Measuring Business Integrity Index at a startup**

- Created a system that utilizes market and financial data about a company to calculate an Integrity Index, which can be used to predict future trends for that company.
- Applied TDD, daily iterations, and continuous deployment to build the system.
- Technologies include: Scala for back end work, Groovy/Grails, and JQuery for front end.

### **Tech Lead for an Automatic Characterization Test Generation at an Insurance Company**

- Created a system which generates characterization test (e.g. JUnit) cases for Java legacy systems.
- The system records program's behavior at run time, and generates test cases based on recorded values.
- The system helps bootstrapping the creation of test cases for legacy systems without test coverage.
- Applied TDD and Speed-To-Value (S2V) in system design and implementation.
- Technologies include: AspectJ, JBoss AOP, JUnit, EasyMock, JMock, Service Provider Interface (SPI), Reflection API.

## **Several Organizations, Ohio, 1990-2008**

- Companies: Cardinal Solutions, Fusion Alliance, Relizon, Sogeti/Cap Gemini, Wright State University.
- Technologies included: Java, J2EE, EAI, Rule Engines, Oracle DB, WebLogic, WebSphere, WebMethods, Neural Networks, Delphi, C, C++, VB, Modula-2, Assembler.

## **EDUCATION/CERTIFICATION**

- Sun Certified Programmer for the Java 2 Platform, 1999.
- M.S. in Computer Engineering, 1994. Wright State University, Dayton, OH
- B.S. in Computer Engineering, 1988. King Saud University, Riyadh, Saudi Arabia.

## COMMUNITY/SOCIAL

- [tek271.com](http://tek271.com), [github.com/ahabra](https://github.com/ahabra), [twitter.com/ahabra](https://twitter.com/ahabra), [ahabra.tumblr.com](https://ahabra.tumblr.com)
- 2024 Windsor-Essex GDG DevFest: High Performance Computing with Java
- 2023 Windsor-Essex GDG DevFest: Speech I/O In Your Browser
- CodeMash 2015 Conference presentations: EcmaScript 6 Now, Elixir For The Impatient.
- Craftsman Guild presentation: Intro to Elixir language.
- Great Lakes Functional Programming Conference 2012: Functional Programming With Javascript
- International Conference on Collaboration Technologies and Systems: Technical administrator, 2007-2021
- International Conference on High Performance Computing & Simulation. Technical administrator, 2007-2021