









## Vignesh Raja Muthuvalkai

**Full-stack .NET Developer · 12 years**  
H1B Visa (SEP 2025) · I-140 approved  
Folsom, California - 95630.

### EXPERIENCE

-  **Arrivia**  
Oct 2022 – Present · 1 year
-  **American Airlines**  
Jun 2016 – Sep 2022 · 6.3 years
-  **Amgen**  
Jan 2015 – May 2016 · 1.5 years
-  **Unisys**  
Jan 2012 – Dec 2014 · 3 years

### EMPLOYER

-  Flexon Oct 2022 – Current
-  Hexaware Jan 2012 – Sep 2022

### EDUCATION

-  Bachelor of Engineering  
Computer Science  
Anna University · 2007-2011

-  Microsoft Certified:  
Azure Solutions Architect Expert

### WHAT I DELIVER?

- Big impact** - Develop products that impacts millions of customers.
- Agile** - Iterate rapidly, taking ideas from concept to reality in weeks.
- Self-learner** – Passionate about learning new technologies quickly.

### AWARDS

-  STAR · ACE · Outstanding Efforts

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## PROFESSIONAL SUMMARY

12 years of experience in developing web, desktop, API and cloud native enterprise applications using .NET and cloud technologies.

Develop production-ready code independently, proactively with minimal guidance. Partner with collaborative cross-functional teams.

### Top skills

- C# • ASP.NET MVC • Web API • SQL Server • Azure
- Angular 15 • React • Redux • NodeJS • TypeScript
- ❖ Web, desktop, cloud-native, hybrid applications.
- ❖ REST API, micro-services, APIM.
- ❖ Databases, queues, caching, messaging, containers, Git.
- ❖ TDD, Test automation (UI & API), A/B testing.
- ❖ Build engaging UIs; testable code; ship high quality features.
- ❖ Effectively communicate technical subjects to stakeholders.

### Responsibilities

- ❖ Proven coding skills in **C#**, **.NET core** and JavaScript; Strong competencies in **OOPS** concepts, data structures and algorithms.
- ❖ Apply the **SOLID** principles of OOD to create high-quality, maintainable, and scalable enterprise applications.
- ❖ Proficient skills in **ASP.NET Web API** development using HTTP, REST, SOAP, JSON, XML, Web Socket, GraphQL, Webhook, Identity Server, Swagger, Postman.
- ❖ Experience with relational databases; Proficient in **SQL Server** stored procedures, triggers, indexes, views, Optimize T-SQL.
- ❖ Hands-on experience with **Angular 15** and its core features, such as components, directives, services, modules, routing and forms.
- ❖ Proficient in **TypeScript**, JavaScript, HTML, CSS as well as dev tools and frameworks like Angular CLI, Bootstrap, Material design, etc.
- ❖ Develop multi-tier **distributed applications** that are **scalable** and **reliable** using **Micro-services**, Queues and Caching; Implement event/message driven design patterns.
- ❖ Provide **technical leadership**, driving and performing best engineering practices to execute large-scale critical programs.

## TECH SKILLS

Front-end	Angular 15, React, Redux, NodeJS, TypeScript, Blazer, WebView (Hybrid), HTML, CSS, JavaScript, jQuery
Web Applications	C#, ASP.NET MVC, .NET Core 2.0 to 8.0
Database	SQL Server, Postgre, MongoDB, Cosmos
API	Web API, WCF, REST/Web Sockets, APIM
Queue	RabbitMQ
Cache	Redis
Messaging	Service Bus, Event hub, Event Grid
Containers	Docker, Kubernetes
Source Control, CI/CD	Git, TFS, Azure DevOps, Jenkins
Data Access / ORM	ADO .NET, Dapper, Entity Framework
Unit Tests	MS Tests, Nunit, xUnit, TestNG, TDD
Test Automation	Selenium, SpecFlow, BDD
Azure	App Service, Functions, VM, Docker, Blob Storage, Azure AD, Key Vault, App Insights, Event Grid, Service Bus, etc.

## PROJECTS



Lead .NET developer

Oct 2022 – PRESENT

### LOYALTY REWARDS PROGRAM

“Membership Loyalty Rewards Program -as-a-Service” app that serves various clients such as American Express, USAA and Marriott to satisfy their members to book hotels, resorts and cruise using reward points.

- ❖ Angular 15
  - ❖ React
  - ❖ Redux
  - ❖ NodeJS
  - ❖ .NET 8
  - ❖ Postgre
  - ❖ SQL Server
  - ❖ HTML, CSS
  - ❖ TypeScript, JS
  - ❖ Azure
  - ❖ Git
- ❖ Developed and maintained a web-based Hotel and Resort application using **Angular 15, TypeScript, React**, Redux, NodeJS and RxJS technologies.
  - ❖ Implement Angular 15 core features, such as components, directives, services, modules, routing and forms.
  - ❖ Develop and debug TypeScript, JavaScript, HTML, CSS. Utilize dev tools and frameworks like Angular CLI, Bootstrap, Material design, etc.
  - ❖ Backend development such as **RESTful API** using ASP.NET core Web API.
  - ❖ Strong proficiency in **JavaScript** DOM manipulation and JS object model.
  - ❖ Designed and implemented user interfaces, data visualizations, and interactive features using Angular Material, D3.js, and Socket.IO libraries.
  - ❖ Applied best practices and standards for web development, such as responsive design, accessibility, and security.
  - ❖ Integrated the dashboard with RESTful APIs, Firebase and payment gateway.

- ❖ Tested, debugged, and deployed the dashboard using Karma, Jasmine, Protractor, and Angular CLI tools.
- ❖ Documented and maintained the dashboard code and functionality using Git.
- ❖ Collaborated with other developers, testers, and stakeholders using Agile methodologies and tools, such as Scrum, Jira, and Slack.
- ❖ Reduced search latency by 50% of 95th percentile using **Redis Cache** & CDN.
- ❖ Develop **azure dashboard** for latency metrics to measure performance, setup anomaly detection alerts and monitor application Health.
- ❖ Write **PL/pgSQL** to develop and maintain stored procedures, functions, triggers, and views in Postgre database.
- ❖ Proficiency in **PostGIS** along with core geospatial concepts
- ❖ Interact with Time series databases such as **TimescaleDB**.
- ❖ Write **Kusto** queries to analyze the Application Insights logs.
- ❖ Develop **YAML** pipelines for build and release.
- ❖ Optimize **Azure** resources with minimized cost with better reliability.
- ❖ Participate in all the **agile** team ceremonies and lead where appropriate.
- ❖ Review Pull Requests and perform code reviews with **Git** source control.



Lead .NET developer

Jan 2021 – Sep 2022

## CLOUD MIGRATION (AZURE)

Migrate and centralize entire portfolio of strategic operational workloads in the Azure cloud to save costs, increase Reliability, Efficiency and Scalability.

- |                    |   |
|--------------------|---|
| ❖ App Service      | ❖ Migrate data and applications from on-premise to cloud cost-effectively.  |
| ❖ Functions apps   | ❖ Assess on-premises servers, databases, web apps & operational workloads.  |
| ❖ Virtual Machines | ❖ Migrate to Azure VM/Containers/Functions/App Services.  |
| ❖ Docker           | ❖ Start or stop virtual machines as per schedule to save cost.  |
| ❖ Blob Storage     | ❖ Monitor and analyze the VM usage; configure auto-scaling policies.  |
| ❖ Azure AD         | ❖ Create and deploy Azure App Service, Functions apps, Durable Functions.   |
| ❖ Key Vault        | ❖ Perform operations in Blob storage containers using SDK, Set and retrieve metadata; Implement storage policies, archive and retention.          |
| ❖ App Insights     | ❖ Analyze and troubleshoot solutions using Azure Monitor.   |
| ❖ Event Grid       | ❖ Authenticate and authorize users and apps using Azure AD; Access keys, secrets, and certificates stored in Azure Key Vault; Managed Identities. |
| ❖ Service Bus      | ❖ Instrument monitoring and logging; Configure an app to use Application Insights, web tests and alerts;  |
| ❖ AI Vision        | ❖ Develop event/message-based solutions using Event Grid, Service Bus.  |
|                    | ❖ Automate business workflows by Extract text, key-value pairs, tables, and structures from documents, and pipe them into back-end systems.       |

### PILOT RPV

Determine RPV (Reserves Priority Value) to assign trips to pilots by meeting contractual agreements and Federal rules. We followed Test-driven Development (TDD) approach with 100% code coverage to ensure all the scenarios of the business requirements are completed.

- ❖ ASP.NET Web API
  - ❖ Blazer
  - ❖ SQL Server
  - ❖ Azure APIM
  - ❖ Test-driven development
  - ❖ xUnit
  - ❖ Azure
- ❖ Architected and developed REST API using ASP.NET Web API.
  - ❖ Developed Blazer frontend application for Pilots to understand the reason for the RPV and how it was calculated.
  - ❖ Implement skills various techniques such as HTTP, REST, JSON, XML, Web Socket, GraphQL, Webhook, Identity Server, Swagger, Postman.
  - ❖ Provide technical leadership to both onshore and offshore teams.
  - ❖ Started with designing and developing unit tests for every small functionality of an application using xUnit.
  - ❖ Write stored procedures, triggers, indexes, views), Optimize T-SQL and improve performance.
  - ❖ Implement API security using Azure AD token provider; Manage the API like rate-limiting by utilizing APIM (Azure API management).
  - ❖ Collaborate with developers to write new code only for the failed automated tests to avoid duplication of code.

### TEST AUTOMATION

Automated the entire manual test case suite of Crew applications by collaborating with the QA engineers as well as leading and mentoring the Dev team.

- ❖ Selenium
  - ❖ C#
  - ❖ SpecFlow
  - ❖ xUnit
  - ❖ Extent Reports
  - ❖ ADO Pipelines
  - ❖ Behavior-driven Test
  - ❖ Git
- ❖ Architected and developed “Hybrid Test Automation Framework” using Selenium, C#, SpecFlow and Extent Reports.
  - ❖ Behavior-driven Test automation achieved using SpecFlow feature files.
  - ❖ Enabled Data-driven testing by accessing Excel sheets and database.
  - ❖ Enabled live data validation by comparing the data in UI vs Database.
  - ❖ Mentored the team to efficiently write feature files and reuse the code.
  - ❖ Using SpecFlow Hooks, automated the logging of Features, Scenarios and Steps into extent report as part of the Framework.
  - ❖ Customized SpecFlow to support parent-child scenarios (nested).
  - ❖ Developed PowerShell script to attach Reports in Test Run Results.
  - ❖ Designed Test Runner UI for On-demand execution of test cases.

## CREW SCHEDULING

Assign trips to flight attendants and achieve maximum trip coverage by considering their bid preference while meeting contractual agreements and Federal rules.

- ❖ ASP.NET MVC
  - ❖ Web API
  - ❖ SQL Server
  - ❖ HTML, CSS
  - ❖ Windows Service
  - ❖ Web Sockets
  - ❖ Gurobi
  - ❖ RabbitMQ
- ❖ Developed End to End Flight attendants Bidding and Awarding systems.
  - ❖ Designed and orchestrated Optimization solution for complex Awarding program using Gurobi models.
  - ❖ Developed windows services to process messages in RabbitMQ.
  - ❖ Defined data snapshot techniques to address real time production issues.
  - ❖ Provide technical leadership to multiple teams of both onshore/offshore.
  - ❖ Developed the real-time panel and charts using Web Sockets.
  - ❖ Create technical documents like Architecture blueprint and Design specs.

## AIRPORT CHECK-IN

Airport check-in app is a **desktop application** to manage all airport activities like check-in, issuing boarding pass and baggage handling. Also, it features flight availability and status, ticketing, reservation and upgrade options. Packed with Crucial functionalities to handle irregular operations like flight delay, cancellation and reschedule.

- ❖ Win Forms
  - ❖ WPF
  - ❖ WCF
  - ❖ SQL Server
  - ❖ TFS
  - ❖ Azure
  - ❖ QIK
  - ❖ Sabre
- ❖ Develop, build and maintain efficient, reliable code using QIK, SABRE.
  - ❖ Migrate and modernized the legacy version of QIK application to WPF.
  - ❖ Design UI screens using XAML and bind data using MVVM pattern.
  - ❖ Parse Sabre response using RegEx and render them in Canvas.
  - ❖ Fix performance issues and review execution plans and optimize SQL.
  - ❖ Understanding the business requirements and specifications of the application
  - ❖ Designing the GUI and backend layout of the application using tools such as Visual Studio, Expression Blend, and XAML
  - ❖ Creating and modifying UI controls, such as buttons, menus, text boxes, grids, and charts, using WinForms or WPF components
  - ❖ Developing application logic and functionality using C# and .NET Framework
  - ❖ Testing and debugging the application using various tools and techniques, such as unit testing, code analysis, and exception handling

- ❖ Integrating the application with external data sources such as databases using ADO.NET, Entity Framework and LINQ.
- ❖ Managing the project lifecycle and delivering the application according to the agreed timeline and quality standards
- ❖ Troubleshooting and resolving any issues or defects related to the application
- ❖ Documenting the application design, code, and features
- ❖ Collaborating with other developers, testers, and stakeholders



Jan 2015 – May 2016  
Saltillo, Mexico.

## DATA CENTER MIGRATION

Successfully delivered data center migration, app modernization and cloud transformation initiative.

- ❖ Performed Infrastructure discovery across 7 data centers.
- ❖ Executed migration and upgrades of 2000+ application servers (physical and virtual).
- ❖ Migrated 1000+ applications and associated disaster recovery environments.
- ❖ Developed Application Migration Tracker engine to perform migration between datacenters using cloud native, message driven architecture with Micro services, Service bus, Azure functions, Blob Storage.
- ❖ Collaborate with Stakeholders; Mentor development team.
- ❖ Follow latest technology trends and correlate them with business.
- ❖ Provide operational leadership with budget planning, execution and status tracking.



Jan 2012 – Dec 2014  
Chennai, India.

- ❖ Developed responsive SaaS web application with multi-tenant architecture.
- ❖ Utilized appropriate serverless Azure resources with minimized cost.
- ❖ Write stored procedures, triggers, indexes, views), Optimize T-SQL and improve performance
- ❖ Developed Monitoring and Metering dashboard using Azure consumption API to analyze cost and usage data.
- ❖ Worked as a software engineer for an HRMS project to customize pages and optimize SQL queries for fast data retrieval to improve end-user satisfaction.
- ❖ Customized Migration App Engine to upgrade Legacy apps to modern technologies.

## INNOVATIVE SOLUTIONS

### Modern code editor for Legacy languages

#### Problem Statement:

- QIK IDE (legacy tool) does not have modern features such as syntax highlighting, collapse/expand the code blocks and regions. Developers were frustrated to troubleshoot the code and struggling scroll through long code blocks of loops and conditional statements .

#### Solution:

- ✓ Created a user defined language for QIK in Notepad++
- ✓ This leveraged all the features of the modern code editor for legacy programming language.
- ✓ Resulted in ~30 minutes of troubleshooting time saved per day for the team size of 12 developers (~1500 hours per year) and ~\$180k per year.

### SpecFlow Multi-level Test Automation

#### Problem Statement:

- Spec-flow does not support parent-child scenario execution; because we cannot execute another scenario from one scenario.
- For example, we have a details page and summary report; where we want to validate both summary report (parent) and details page (child) for each record in the summary report.

#### Solution:

- ✓ Dynamically activate the instance of the child scenario with all the dynamic parameters to execute all the step definitions of the child scenario.
- ✓ Then re-initialize the parent scenario, when child scenario execution has completed.
- ✓ With this solution, we could automate the drilldown reports that saves ~8 hours of manual regression testing per release (~832 hours per year) and ~\$75k per year.

### Ad-hoc Selenium automation for Critical Prod issue

#### Problem Statement:

- There was a time-sensitive production issue during go live; Crew scheduling algorithm incorrectly assigned trips to flight attendants that violated the contractual agreements. The entire team needed to find out the incorrect assignments manually since we had to verify the 3000+ flight attendants in downstream application. This manual process is time-consuming and not reliable because of manual intervention.

#### Solution:

- ✓ I've created an automated test using Selenium and C# over-night, since we had no automation developers/testers in the team.
- ✓ We have identified all the incorrect assignments within 30 minutes and fixed them within contractual time window.
- ✓ The management was super happy and greatly appreciated the swift RCA and immediate over-night HotFix when nobody expected this swift automation solution.

## Data Snapshot Utility

### Problem Statement:

- Troubleshooting time-sensitive critical production issues requires the entire set of data from related tables needs to be copied to lower environment. Backup and restore database is not suitable because of the size of the database which takes more than two hours.

### Solution:

- ✓ I've designed a data export and import utility to copy, specific data from production database.
- ✓ Only required set of data will be exported as a list of CSV file packed into zip file from Prod.
- ✓ Then we import the zip file into lower Troubleshooting environment using BulkCopy.
- ✓ This solution is life-saver utility to troubleshoot and fix time-sensitive critical production issues.

Thank you again for your consideration for the role!