AVRAAJ MATHARU

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EXPERTISE & SKILLS

- **AI / ML -** Alchemist providing guidance from fundamentals to advanced topics, excelling in evaluating predictive performance and navigating the landscape of AI / GenAI. Python, Scikit-learn, Tensorflow, Numpy, Pandas, Matplotlib, Seaborn, Decision Trees, Confusion Matrix, KNNs, Logistic Regression, SVM, LangChain, RAG, Neural Networks, CNN, Deep Learning, HyperParameters, Reinforcement Learning.
- **DevOps**- Linux(ARM & X86 architecture), Shell / Bash Scripting, Creating and Maintaining VMs & Servers, Vagrant, Rosetta, Developing and maintaining CI /CD pipelines, Containerization - Docker images & containers, Kubernetes, Terraform, YAML file configurations, GitOps, Azure DevOps, AWS CodeBuild, AWS CodePipeline, Jenkins, Ansible.
- **Automation** - Java, Selenium, Appium, BDD, Cucumber, Gherkin, Page Object Model, Robot, Tosca, POSTMAN, ReadyAPI, MOCHA, Jest, CHAI, WebdriverIO, ELK / OLK Stack, Building CI /CD pipelines, JIRA, Keyword driven / Data driven/ Hybrid frameworks and more across Agile and Waterfall SDLC methodologies.
- **Software Development** - JavaScript, Node.js, ReactJS, JSX, jQuery, HTML, CSS, APIs, and Bootstrap.
- **Cloud platforms -** AWS & MS Azure
- **Operating Systems** - Windows, MacOS, Linux, Ubuntu, Fedora, CentOS.

REFERENCES

Darren Coupland (EVP, Head of Capgemini UK)
✉️ darren.coupland@uk.sogeti.com

Gary Moore (VP, CapgeminiUK)

✉️ gary.moore@uk.sogeti.com

Declan Griffin (Sales Director, Capgemini UK)

✉️ declan.griffin@sogeti.com

MEMBERSHIP & REPRESENTATIONS

- Lead Technologist at Sogeti UK
- UK Representative for AI/ML
- UK Guild Lead for AI, Innovation & New technologies
- UK Representative for Global Architects,
- Member of CapgeminiLabs UK

WORK EXPERIENCE

AI / GenAI Architect   2021 - Current
Capgemini UK Plc

GenAI Amplifier Development:

- **Advanced Architectures**: Implemented **LangChain** to support a multiple **LLMs** (Large Language Models) **architecture**, enhancing the system's ability to handle diverse **natural language processing** tasks. Integrated **Retrieval Augmented Generation (RAG)** to improve the relevance and accuracy of generated responses by combining LLMs with a **retrieval-based approach.**
- **Cloud Integration**: Played a key role in the **architecture design** of GenAI Amplifier, ensuring seamless integration with both **Microsoft Azure and AWS cloud services.**
- **Multi-Model Support:** Effectively **integrated Azure OpenAI and AWS Bedrock** services to enhance the capabilities and performance of the **GenAI Amplifier** ensuring **robust and scalable AI-driven** functionalities within the **GenAI Amplifier**
- **AI Guardrails Implementation:** Assisted in the **implementation of guardrails** to ensure **safe** and **ethical use of GenAI** tools, maintaining compliance with industry standards.
- **Prompt Engineering:** Expert in **crafting meta prompts** and applying **prompt engineering** techniques, including **zero-shot, one-shot, and few-shot learning**, to **optimise model performance** and output quality.
- **Infrastructure Management:** Created and managed **Azure Virtual Machines (AVMs), Azure Blob storage, Azure Container Instances (ACI), and Azure Kubernetes Service (AKS)** to support scalable and efficient operations.
- **Feature Ownership**: Led the **development and implementation** of key features such as **Code Generation** and **Code Transformation**, driving significant enhancements in the tool's capabilities.
- **DevOps and Security**: Implemented robust **CI/CD pipelines in Azure DevOps**, incorporating **SonarQube** for code quality analysis and **GitHub security scans**. Utilised **Docker containers** and **GitHub Actions** to streamline and secure the **deployment** process.
- **Front-End Development:** Led the development of front-end features using **JavaScript, ReactJS, Node.js**. Ensured optimized page load performance by applying best practices and leveraging **React Router DOM**.

JumpStarts USA GenAI Tools Development:

- Contributed to the **development** of **advanced AI tools** such as **AIDA (AI Insights & Data Assistant), Copilot, Conversation Knowledge Mining**, and **Modern Enterprise Search.**
- **AI Applications**: Worked on **building modern AI applications**, leveraging **multi-agent architecture** and i**mplementing guardrails** to ensure **reliable and secure AI operations**. Successfully **integrated AIDA with Atlassian applications**, utilising **LlamaHub** to **drive data insights** and improve user experience.
- **Vector Embedding**: **Integrated vector embedding** techniques to enhance the system's ability to **understand and process large datasets.**

DAISY AI Digital Assistant Enhancement:

- Project Scope: Contributed to the enhancement of **DAISY**, an **AI digital assistant**, using **Google BARD (now Gemini) and OpenAI LLMs**.
- Developed on **Unreal Engine 5 platform**, enhanced DAISY's functionalities to **support** various **business & technical processes** and **improve** overall **operational efficiency** through **advanced natural language processing** capabilities.

AI / ML Hackathons and Competitions

2022 - Global Data Science Challenge: Identify the insect type by analysing the sounds of categories of insects using multiple advanced ML models.
2024 - Microsoft OpenAI Overdrive AI Hackathon: Surveillance and identification of lands using geospatial satellite images.
2024 - GenAI Amplifier Hackathon: Prompt Engineering and Master Prompt development.

Technical Transformation / AI / GenAI / Innovation Lead

Capgemini UK Plc   2019 - Current

- Actively engaged in **analysing clients' existing architectural frameworks** to identify areas of improvement and **potential for AI integration**. Conducted **thorough technical assessments** to **understand current system capabilities**, **limitations**, and **performance bottlenecks.**
- Played an **important role in integrating AI and GenAI technologies** into **clients' landscapes**. Employed **comprehensive** technical **analysis** to derive the most **effective and efficient implementation strategies**, **optimising system performance** and functionality.
- **Key contact** for presenting **Sogeti / Capgemini GenAI** capabilities, examples include **UKHSA Annual Conference** and **NHSBT** conferences.
- Led **extremely challenging** and **critical accounts** across **diverse sectors** with varied teams- UKHSA (UK Health Security Agency) and MoD (Ministry of Defence) where I managed to turn around the accounts into profit generating accounts for Sogeti UK by establishing stake holder relationships, **implementing innovations & new technologies.**
- Oversaw **onsite and offshore teams** of on an average 30 - 35 professionals, spanning **Automation Engineers**, **DevOps Engineers**, **Developers, Testers, and Infrastructure managers.**
- Domain experience includes **Utility sector, Health sector, Aerospace and Defence systems, Telecom, Retail, Supply chain & Logistics, and Hospitality sectors.**
- Engaged in both internal and external **client-based technical discussions** at Sogeti/Capgemini for **implementing process, technical & project innovations and new technologies.**
- **Developed Business** and involved in **Pre-sales Activities including contributing to RFPs, Bid responses & preparations**, and client **presentations**, playing an important role in **business growth.**
- Demonstrated ability to **pilot accounts and drive business improvements** thus **increasing business revenue** at multiple levels and occasions.
- I have a **proven track record** and ability to **turn challenging accounts** into **profit generating accounts** for the firm.
- **Contributed significantly** to the recruitment process as a member of the **Technical Interview Panel**.
- **Leveraged expertise** in technical assessment and evaluation to identify and onboard top talent, ensuring a high calibre of staff for key roles.
- **Key trusted resource** to conduct **presentations, tech talks** and **brown bag sessions** for **Sogeti GenAI** offerings.

EDUCATION & CERTIFICATIONS

- **Masters in Artificial Intelligence and Machine Learning - IIT Kanpur** (2025 cohort)
- Professional Certification **in Machine Learning and Artificial Intelligence – Imperial College, London**
- **Masters of Science** - Information Technology
- **Bachelor of Science** - Information Technology
- **TOGAF** certified **Enterprise Architect** Foundation
- **AWS** Certified **Solution Architect** Associate
- **AWS** Certified **DevOps Engineer** - Professional
- **Microsoft** Certified: **DevOps Engineer** Expert
- **Harvard** Certified **Connected Manager**
- University of Michigan – **Python** Certification
- Python for **Data Science** and **AI** – IBM
- Developing **Cloud apps** with **Node.js and React** – IBM
- Tricentis **TOSCA** Automation Specialist **Level 1&2**
- ISTQB certified Agile Practitioner

Tehnical Transformation Lead / Sr Automation & AI Architect / DevOps Engineer

Capgemini UK Plc   2019-Current
UKHSA - Public Health   2020-2024

- Introduced and Implemented **AI driven** automation **across the technical landscape** of UKHSA (United Kingdom Health Security Agency)
- **Led multiple teams** across various sub-projects, developing a robust **automation framework** for the COVID-19 Test & Trace app across **Android, iOS**, and **web platforms** using **Java, Appium, RestAssured, Selenium, BDD, Cucumber**, and **Gherkin** for development.
- Established and managed a streamlined **CI/CD** pipeline using **AWS CodeBuild**, **CodePipeline**, and **GitHub Actions**, ensuring seamless integration and deployment.
- Integrated **Docker containerization** into the workflow using **YAML** and **Terraform** configurations, optimizing resource management. Handled environment configuration management using **Ansible.**
- Managed **VPCs**, created and managed **VMs** (**EC2** instances), **S3, CloudWatch, ECR, ECS, EKS** proficiently for efficient application deployment and data storage.
- Generated comprehensive **Test and Automation reports weekl**y, **harnessing ML insights** via **ELK (OLK) dashboard** for continuous improvement.
- Applied a holistic approach, combining **GitOps**, **DevOps** and **Technical Architect** expertise to **drive innovation** and efficiency in software development and deployment processes.
- Provided **technical expertise** in **security and infrastructure assessments**, **evaluating vendor tools** based on **Enterprise Architecture Principles** for optimal solutions.
- Crafted meticulous **Automation Test Strategies and plans**, conducting thorough **feasibility analyses** to ensure efficacy.

Software Test Automation Architect / Delivery Lead

Capgemini UK Plc

2020

Spirit Energy & Welsh Water - Utility

- **Effectively managed and coordinated teams** of **automation and environment engineers**, overseeing **both onshore and offsite** operations across **two concurrent projects.** Demonstrated **exceptional leadership** and achieved a **100%** on-time **delivery** rate for both clients.
- **Architected a Test Automation framework** utilizing **Tricentis TOSCA** specifically tailored for **SAP SuccessFactors**. Established **automation environments** utilizing **virtual machines (VMs)**, **virtual desktop infrastructure (VDIs)**, and **TOSCA Servers** for executing overnight tests.
- Developed **Test Automation Strategy** & **Plans** and Conducted **thorough evaluations** of **automation tools** and **implemented coding standards for scripts**, **ensuring consistency and reliability**. Generated **detailed daily and weekly automation reports** for **technical and management stakeholders**, providing valuable insights into project progress.
- Served as the **primary technical point of contact & trusted partner**, effectively **managing relationships** with **stakeholders** and ensuring clear communication channels throughout the project lifecycle.

SAP Lead Software Development Engineer in Test

Capgemini UK Plc

2019-2020

British Aerospace and Defence Systems - Defence

- **Developed and crafted** a **SAP test automation framework** through **comprehensive analysis** of client systems. Introduced the framework's advantages by **delivering engaging presentations** and **Proof of Concepts (PoCs)**, resulting in successful **implementation of automation solutions** for the client.
- Successfully **Designed Test Automation framework** for **SAP migration from SAP r/3 to SAP S/4 HANA**.
- Orchestrated **CI pipeline** using **TOSCA Server / Jenkins** to align with **DevOps** principles.
- Engineered and executed **Automation Test Strategy and Plan**.
- Evaluated and implemented Automation test tools for a greenfield project.
- Demonstrated technical prowess by integrating client's **PLM**, **Workflow Management tool with Tricentis TOSCA** through PoC presentations.
- Conducted comprehensive **analysis** of **environments**, **infrastructure**, and UI functionality to devise **Test Automation** implementation **plan**.
- Presented client demonstrations highlighting the advantages of transitioning from manual to automated testing.
- Implemented **Tricentis TOSCA** for developing and scheduling automated test runs.

Software Automation Architect/ Delivery Lead

Capgemini UK Plc (Contractor)

Ministry of Defence UK - Defence

2018-2019

- **Effectively managed and led a multidisciplinary team** consisting of **automation testers, database administrators, and database testers** for a **critical government defence project**. **Spearheaded** a comprehensive overhaul of testing tools and technologies through **thorough analysis** and **evaluation** of **systems, applications, and tools**.
- Played a **pivotal role in assisting clients** in **selecting appropriate automation tools and technologies**. **Led** the successful **implementation** of chosen **tools and technologies**, ensuring alignment with project requirements and objectives.
- Framework 1: **Java, Selenium WebDriver, BDD (Cucumber, Gherkin), Page Object Model**.
- Framework 2: **JavaScript, MOCHA test framework, Grunt, WebDriverIO, CHAI** assertion library for MoD projects.
- Maintained and executed automation scripts using F# on Canopy Test framework.
- Introduced Agile methodologies (**SCRUM, KANBAN**) to enhance testing efficiency and delivery speed.
- Managed Test environments on **Linux OS**, including deployment, snapshot management, and environment upkeep using Shell scripting.
- Configured and executed overnight tests using Jenkins and TeamCity for Continuous Integration and Continuous Deployment.
- Utilized **Micro Focus ALM** and **UFT** for automation script maintenance and execution.
- Contributed to Test strategy creation, planning, automation framework development, script execution, and report generation.
- Scheduled and automated tests using **Micro Focus ALM and UFT 14.0**.
- Developed **Test Automation Strategy** and **Test Plans**. **Managed Statement of Work activities** and led teams, achieving **100% revenue realization**.
- Facilitated active **engagement** with **stakeholders** for **commercial sign-off** and proficiently **managed billing processes**.

Sr Software Development Engineer in Test

Capgemini UK Plc

2016-2018

Royal Mail UK Plc - Logistics

2017-2018

- Enhanced existing automation framework with **Java and Selenium** for improved productivity and efficiency.
- Implemented **REST API** Automated Testing with **SoapUI**, enhancing testing capabilities.
- Utilized **Groovy scripting** language to integrate tests and manage test data effectively.
- Created **mocks/stubs** for web service responses using **Java and Groovy** scripting.
- **Led Sprint Planning** and Retrospective meetings, driving Agile methodologies adoption.
- Facilitated Automation Tool selection for web and API testing, ensuring optimal solutions.
- Developed integration between **JMeter and Jenkins** for **one-click API Automation test execution**, aligning with DevOps architecture.

Software Development Engineer in Test

Capgemini UK Plc

Talk Talk - Telecommunications   2016-2017

- Pioneered **Agile-driven Test Automation** integration.
- Architected **Selenium Automation** framework leveraging **Java, TestNG, and Page Object Model**.
- Enhanced Test cycle time, coverage, and release quality.
- Conducted workshops on **Selenium**, **Java**, and **TestNG** for QA community empowerment.
- Engineered **Java-based utilities** for automated **Test Data creation**.
- Developed and managed web-based automation portal for seamless **Bugzilla-JIRA** integration.
- Contributed to tool selection for Java-based windows desktop applications.
- **Led Automation Testing** across two concurrent projects, balancing execution and **project management** duties.

Software Development Engineer in Test

DHL Ltd. (Formerly UK Mail) - *Supply chain and Logistics*   2014-2016

- **Developed automated test** scripts for **web, mobile, and web-services** testing across **STLC and SDLC**.
- Extracted, designed, and developed test cases for both client-server and web applications from requirements specifications.
- Automated **web-services testing** in **SOA** environment using **SoapUI**.
- Conducted **Load testing** and stress testing using **JMeter** and **SoapUI**.
- Implemented automation testing in Test Driven Development (**TDD**) environment.
- Executed alpha and beta testing for **UAT, functional testing, GUI testing, regression testing, and system testing**.
- Generated mock responses (service virtualization) using **Service V, Service VPro, and SoapUI**.
- Utilized **Groovy scripts** to manipulate test data, trigger test suites, etc.
- Conducted cross-browser testing (browser compatibility).
- Managed test repository in **Team Foundation Server** (TFS) and **Microsoft Test Management** (MTM).
- Utilized defect raising and tracking tools like **Jira, SharePoint, TFS, and MTM**.
- Generated periodic test reports and provided timely updates to Test Manager, Project Manager, and Business Manager.
- Worked with **RDBMS and SQL scripts** for **database querying**.

Web Software Developer

Freelance - Various - *Hospitality*   2011-2014

- **Developed** and implemented responsive and user-friendly web interfaces using **HTML, CSS, and JavaScript**.
- Collaborated with design teams to **translate wireframes and mock-ups** into visually appealing and functional web pages.
- Ensured **cross-browser compatibility** and optimize web applications for various devices.
- Wrote **clean, efficient, and well-documented code** following industry best practices.
- Creating manual tests and execution of manual test scripts.
- Defect reporting and tracking using SharePoint.
- Used **media queries** for developing **responsive web** designs.
- Utilized **front end libraries** for created dynamic, clean and responsive websites
- Providing objective feedback to software development project teams Designing tests to mitigate risks.
- Created **master and nodes** for executing the tests.

Web Software Developer

Atos   2009-2010

- **Developed** and implemented responsive and user-friendly web interfaces using **HTML, CSS, and JavaScript.**
- Collaborated with design teams to translate wireframes and mock-ups into visually appealing and functional web pages.
- Ensured **cross-browser compatibility** and optimize web applications for various devices.
- Wrote clean, efficient, and well-documented code following industry best practices.
- Used **media queries** for developing **responsive web designs**.
- Utilized **front end libraries** for created dynamic, clean and responsive websites

AWARDS & RECOGNITIONS

- STAR Performer 2022 - Sogeti / Capgemini UK
- GEMS Best Innovation to Support Project Delivery- Sogeti / Capgemini UK
- STAR Performer 2021 - Sogeti / Capgemini UK