

# Agile AI University – Technology Stack Overview

## Purpose

This document provides a high-level and implementation-accurate overview of the technology stack used by Agile AI University. It is intended for investors, board members, auditors, and senior stakeholders to understand the architectural decisions, governance posture, and long-term scalability of the platform.

## Core Architectural Principles

- Governance-first design
- Separation of concerns between issuance, verification, sharing, and documents
- Public trust surfaces are read-only and independently verifiable
- No vendor lock-in for academic authority

## Frontend & Public Interfaces

- Static Websites (HTML, CSS, JavaScript)
- Public Credential Verification Portal
- Assessment & Insight Report Interfaces
- Credential Sharing & OpenGraph Surfaces

## Portal & Application Layer

- Student Portal (Authenticated)
- Admin Portal (Governed Operations)
- Trainer & Subscription-ready Architecture
- Role-based access control

## Backend & Services

- Firebase (Authentication, Hosting, Firestore – where applicable)
- Resolver-led entitlement architecture
- Server-side document rendering services (Python)

## Document & Artifact Generation

- Python-based rendering services
- ReportLab for University Certificate PDFs
- Pillow (PIL) for Credential Card Images
- Private storage with controlled access

## Verification & Trust Layer

- Public verification without login
- Admin-visible verification requests
- Institution-controlled verification domain
- No credential authority delegated to social platforms

## Security & Governance

- Phase-based governance freezes (Phase-B, Phase-C)
- Immutable credential issuance records
- Controlled document access & revocation
- Clear audit trail and change authority rules

## Why This Stack

This technology stack balances institutional credibility, modern cloud scalability, and long-term governance. Each component is chosen for clarity of responsibility, auditability, and resilience against misuse or over-commercialization.

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