Geocodio Feature Matrix

This document provides a detailed comparison of features across the official Geocodio PHP library, the third-party pygeocodio Python library, and the proposed first-party Geocodio Python library.

Feature Category	Feature	PHP Library	pygeocodio	Proposed Python Library
Geocoding	Forward Geocoding (single address)	✅	✅	✅
	Forward Geocoding (batch)	✅	✅	✅
	Reverse Geocoding (single coordinate)	✅	✅	✅
	Reverse Geocoding (batch)	✅	✅	✅
Address Parsing	Extract Address Components	✅	✅	✅
Data Appending	Time Zones	✅	✅	✅
	Congressional Districts	✅	✅	✅
	School Districts	✅	✅	✅
	Census Data	✅	✅	✅
	State Legislative Districts	✅	✅	✅
	FIPS Codes	✅	✅	✅
Rate Limiting	API Rate Limit Respecting	✅	⚠️ (partial)	✅ (robust)
	Exponential Backoff on Failures	✅	⚠️ (basic)	✅ (robust)
Error Handling	Input Validation & Errors	✅	⚠️ (basic)	✅ (advanced)

	Exception Handling	✅	⚠️ (basic)	✅ (comprehensive)
Async Support	Asynchronous Client (aiohttp/asyncio)	❌	❌	✅
	Async Batch Processing	❌	❌	✅
	Async Rate Limiting	❌	❌	✅
Developer Experience	Pythonic Syntax	-	✅	✅
	Structured & Intuitive API	✅	✅	✅
	Clear & Comprehensive Documentation	✅	⚠️ (limited)	✅ (comprehensive)
	Usage Examples & Tutorials	✅	⚠️ (limited)	✅ (extensive)
	Comprehensive Unit & Integration Tests	✅	⚠️ (partial)	✅ (90%+ coverage)
CI/CD & Automation	Automated CI Testing (GitHub Actions)	✅	❌	✅
	PyPI Package & Automated Deployments	❌	✅	✅ (fully automated)
	Versioning Automation (bumpversion)	❌	❌	✅
CLI Tooling	Command Line Interface (CLI)	✅ (separate)	❌	✅ (optional)

📝 Notes & Clarifications

- ✅: Supported fully and robustly

- ⚠️: Supported partially, basic implementation, or lacking depth

- ❌: Not supported

🚩 Critical Differentiators for the Proposed Python Library

The new library uniquely differentiates itself with:

- **Full Async Support:** Significantly enhancing performance and concurrency, especially beneficial for high-volume applications.

- **Robust Rate Limiting & Error Handling:** Explicit handling of Geocodio API limits and errors ensuring higher reliability.

- **Developer Experience:** Extensive documentation, examples, and testing enhancing ease of use and reliability.

- **Comprehensive Automation:** Advanced CI/CD workflows for maintenance and deployment, significantly reducing manual overhead.

📥 Downloads

- Markdown version (Geocodio_Feature_Matrix.md)

Please replace the placeholder link above with your actual download location upon distribution.