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MegaWatt

Application for Working Student Position - Geodata Processing with SQL, Python and QGIS

The geodata processing workflow migration from Excel-based systems to PostgreSQL/PostGIS represents exactly the type of architectural challenge that drives my systematic optimization approach. Currently pursuing my MSc Data Science at TU Braunschweig while maintaining extensive backend engineering experience, I see this opportunity to modernize spatial data infrastructure as directly aligned with my expertise in database design, Python automation, and scalable system architecture.

- **Database Architecture & Migration:** I have built production-grade systems using PostgreSQL, Redis, and MongoDB with FastAPI backends. My experience includes schema design, query optimization, and data pipeline automation. The transition from Excel workflows to PostgreSQL/PostGIS follows established patterns of data normalization and performance-driven architecture that I have implemented across multiple projects.
- **Python & Geospatial Data Processing:** I bring extensive experience with pandas, data analysis libraries, and automated processing pipelines. While geodata-specific libraries like geopandas and shapely represent new territory for me, my underlying data manipulation patterns and Python ecosystem mastery provide a solid foundation for rapid adaptation to spatial analysis workflows.
- **SQL & Database Integration:** I am confident in complex SQL operations, joins, and performance optimization across multiple database systems. My experience building RESTful APIs that integrate database operations with frontend applications demonstrates the full-stack understanding necessary for seamless QGIS-database integration.
- **System Documentation & Knowledge Transfer:** I have built comprehensive documentation systems and training materials for complex AI research pipelines and multi-agent architectures. My experience includes wiki maintenance, code documentation, and collaborative development processes that ensure knowledge preservation and team onboarding efficiency.

The 20-hour weekly commitment aligns well with my current academic schedule while providing sufficient bandwidth for meaningful contribution to geodata infrastructure modernization. My combination of database expertise, Python automation experience, and systematic approach to legacy system migration positions me to contribute both technically and strategically to long-term development in data engineering and spatial analysis systems.

Warm regards,

Aditya Ghanashyam Ladawa