Adoption of AI Coding Agents in Open-Source Development: Developer Profiles and Repository Characteristics

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Objective

This project aims to investigate the factors that influence the adoption of AI coding agents in collaborative software development. Specifically, it examines the characteristics of developers who employ AI agents to generate pull requests, and how the size or activity level of a repository relates to the proportion of agent-generated pull requests within it.

Research Questions

RQ1: What profile of developer tends to adopt AI coding agents for generating pull requests compared to developers who do not use such agents?

RQ2: How is the proportion of agent-generated pull requests in a repository associated with the repository's size or activity?

Dataset

The study will use the *AIDev* dataset, which includes 932,791 agent-authored pull requests across 116,211 repositories and 72,189 developers. The dataset provides identifiers for pull requests, agent attribution, developer identities, repository-level metadata (e.g., stars, forks), and historical contribution records, enabling comparative analysis.

Expected Contribution

The study will provide empirical evidence on adoption patterns of AI coding agents in real open-source environments. The findings are expected to clarify whether adoption correlates with developer experience or project scale, contributing to ongoing work on the integration of AI assistants into software development workflows.