Foundations and Applications of Program Analysis – Research Perspective

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Technical Writing - Survey

- Summarization of an area of research
- Journal: ACM Computing Surveys
- Examples:
  - Automatic Software Repair: A Survey
  - Evaluating Fuzz Testing
  - A survey of machine learning for big code and naturalness

Key Elements of the Survey

- abstract
- introduction
- classification of the work (table)

Fault model	Change model	Tecqhniques	Section
general	synthesis of new expressions	SemFix, DirectFix, Angelix, SearchRepair	Sec. 6.2.2
wrong conditions and missing preconditions	condition change and if condition insertion	NOPOL, Infinitel, DynaMoth	Sec. 6.2.3
concurrency faults	critical region manipulation, parallelization keyword move	AFix, CFix, HFix, Surendran et al. Axis, Grail, Lin et al., DFixer	Sec. 6.2.4
HTML generation faults	string modification	PHPQuickFix and PHPRepair	Sec. 6.2.5
string sanitization	insertion of checks, string modification	SemRep, Yu et al.	Sec. 6.2.6
access control violations	insertion of role checks	FixMeUp	Sec. 6.2.7
memory leaks	insertion of free() statements	LeakFix	Sec. 6.2.8

- future directions