《Augmented bug localization using past bug information》	2010	ASRC
《ALBFL: A novel neural ranking model for software fault localization via combining static and dynamic features》	2021	IST
《Early Life Cycle Software Defect Prediction. Why? How?》	2021	ICSE

Augmented Bug Localization Using Past Bug Information

2010 ASRC

01 Semantic Extraction

Extracted identifier names and string literals at the method level of granularity.

02 BugXplore Module

This module collects information from previously documented bugs and appends it to the existing method documents.

03 Query Module

Creating and querying the information retrieval model.

Bugzilla

ANTLR

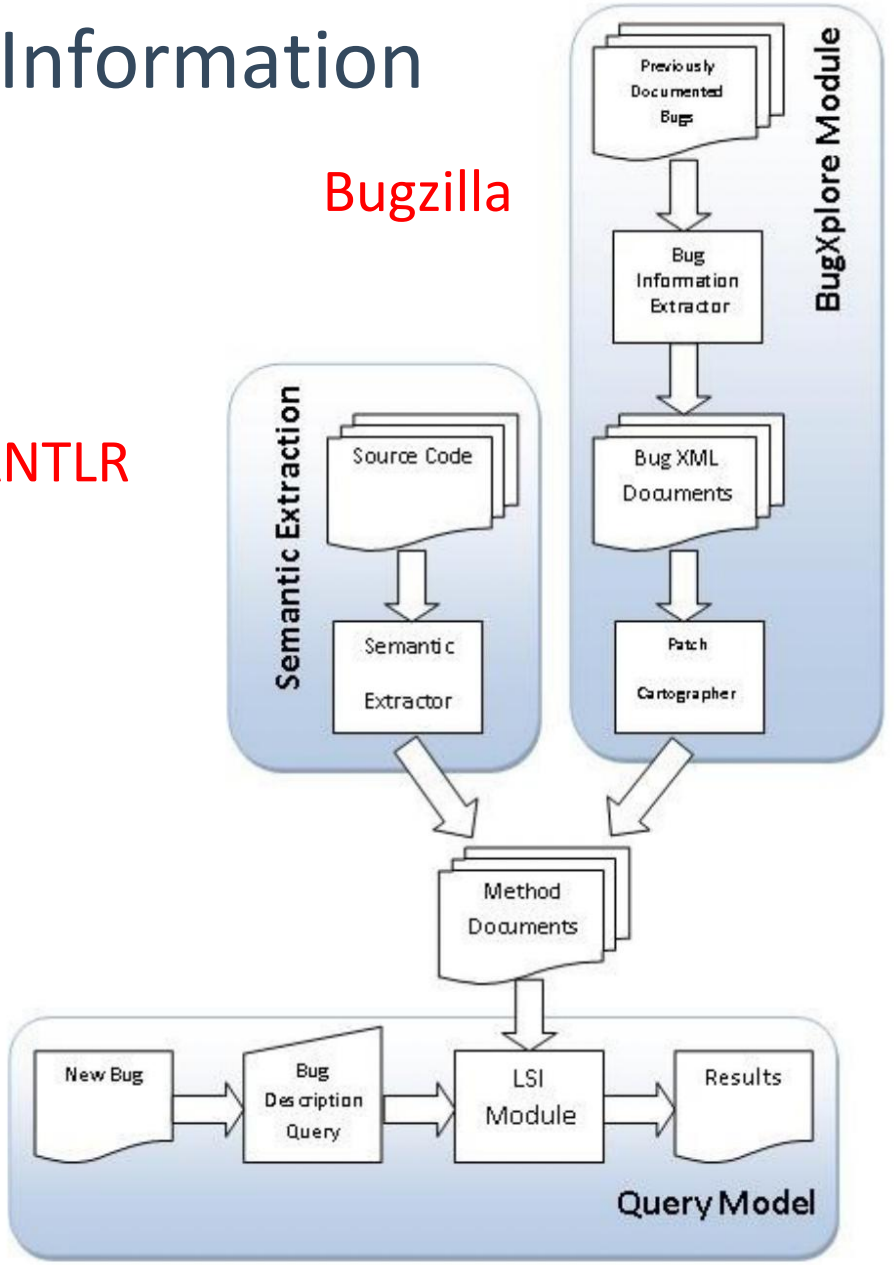

Figure 1. Augmented bug localization process diagram

ALBFL: A novel neural ranking model for software fault localization via combining static and dynamic features

2021 IST

Table 1
Statistical characteristics of code statements.

Statistical Characteristics	Descriptions
level	The level of indentation of the statement.
nLines	The number of lines in a program file that the statement belongs to.
nComments	The number of comments in a program file that the statement belongs to.
nTokens	The number of tokens in the statement.
nChars	The number of characters in the statement.
nAnnotations	The number of annotations.
nOperators	The number of operators.
nKeywords	The number of keywords.
nIntegers	The number of integers.
nStrings	The number of strings.
nBoolean	The number of booleans.
nNulls	The number of nulls.
nPoints	The number of pointers.
nBasicTypes	The number of basic-type variables.

- SBFL
- MBFL
- Deep learning

Statements' type
Length of statement
Level of indentation
Program Slicing

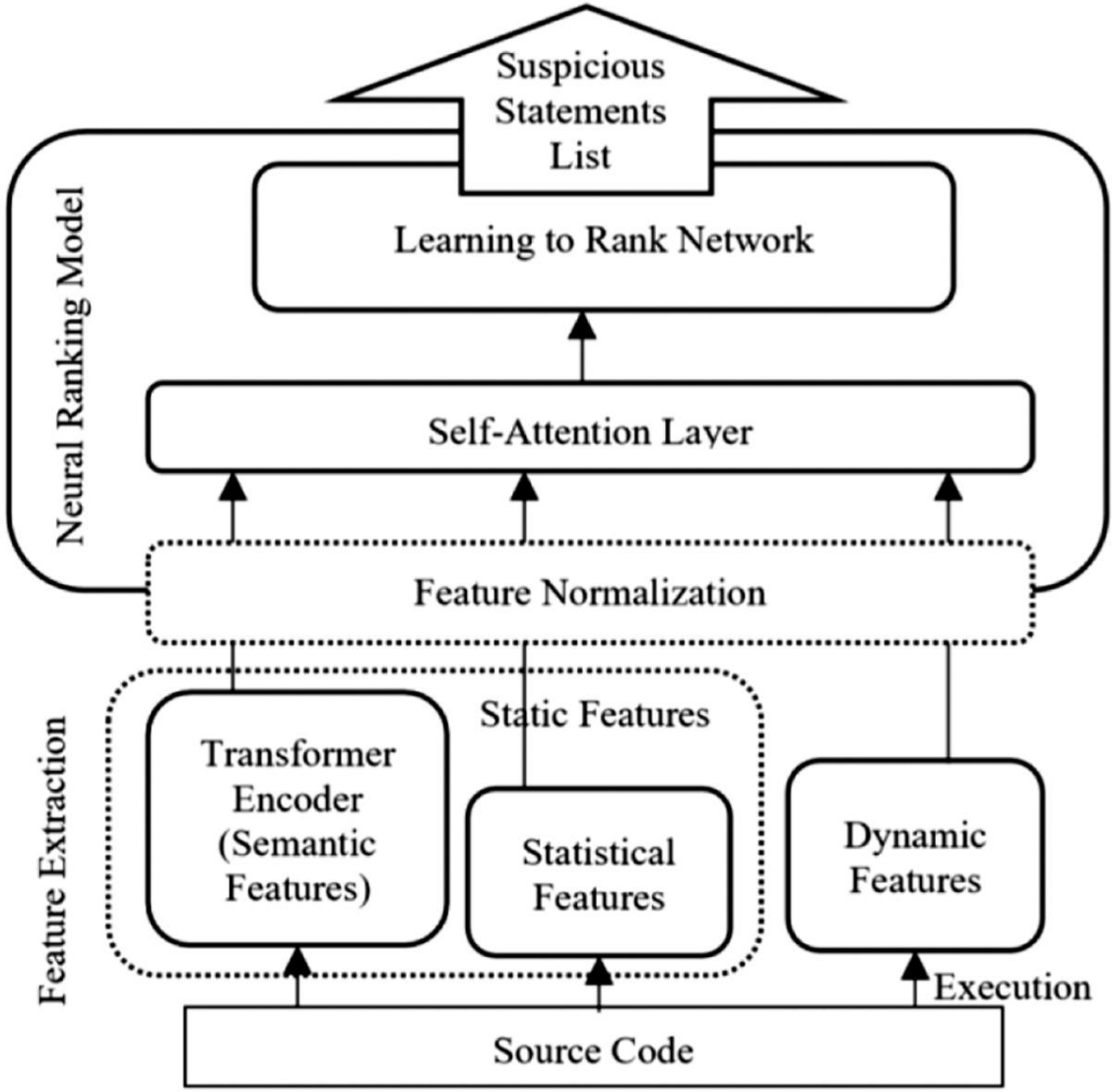

Fig. 1. The Architecture of Our Model ALBFL.

ALBFL: A novel neural ranking model for software fault localization via combining static and dynamic features

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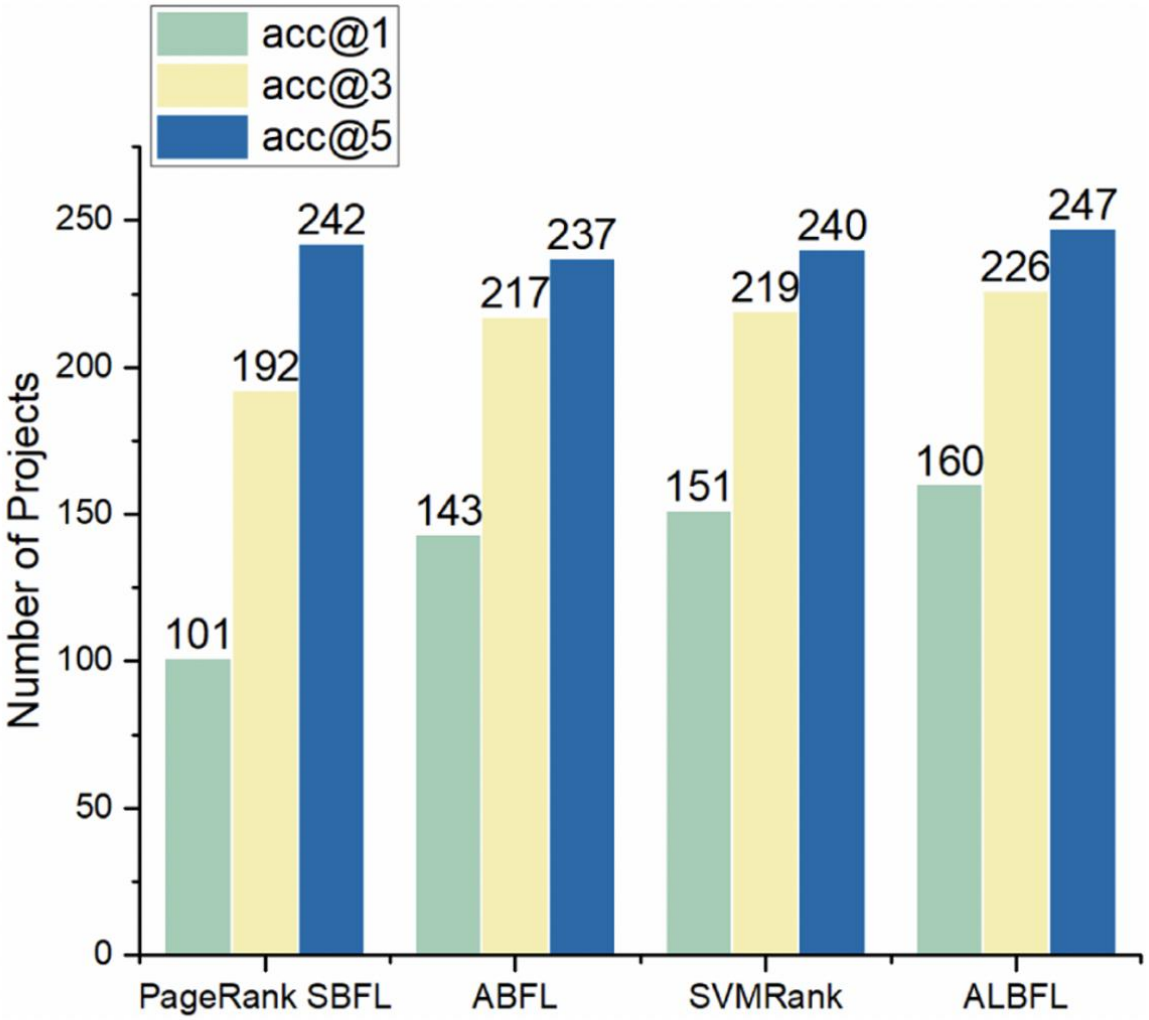

Fig. 11. The effectiveness of ALBFL on the method level.

Early Life Cycle Software Defect Prediction. Why? How?

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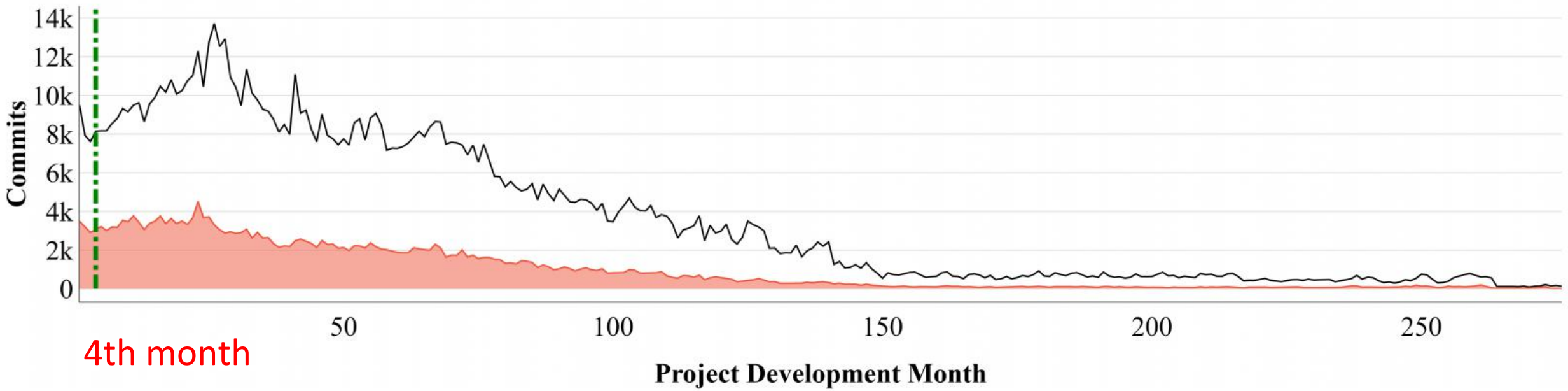

Fig. 1: 1.2 million commits for 155 GitHub projects. Black:Red (shaded) = Clean:Defective commits. In this paper, we compare (a) models learned up to the vertical green (dotted) line to (b) models learned using more data.