



GÖTEBORGS
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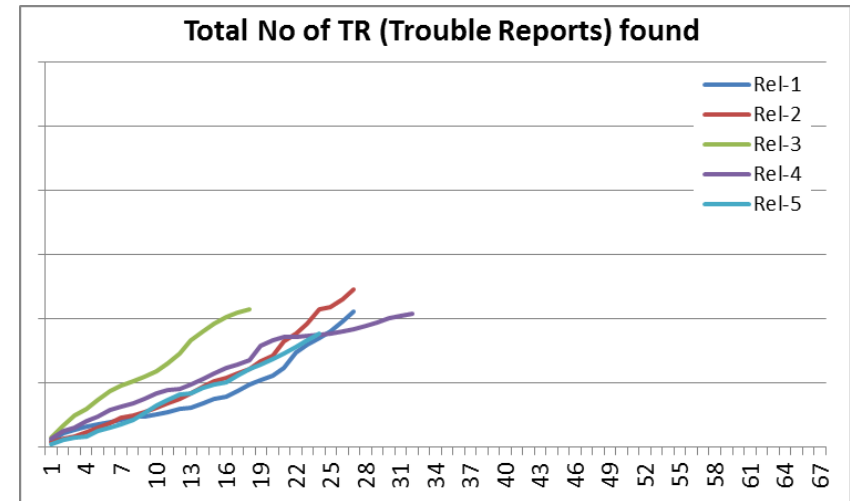
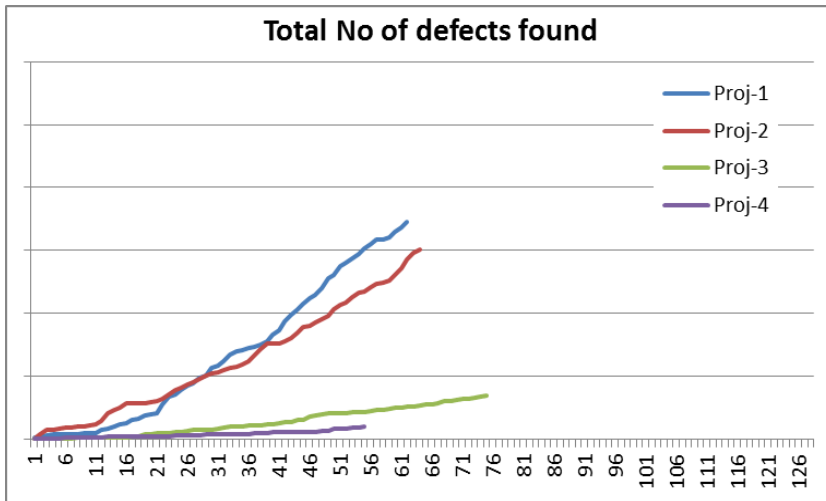
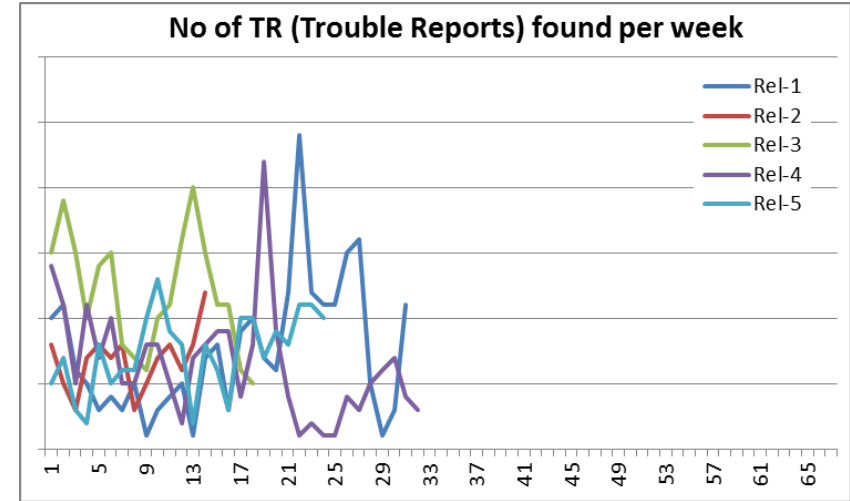
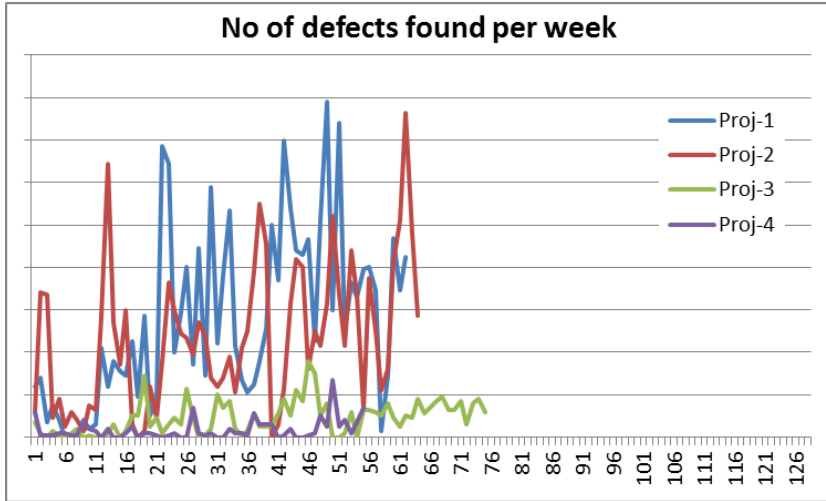
VISEE Project

Software Defect Prediction & Release Readiness Assessment



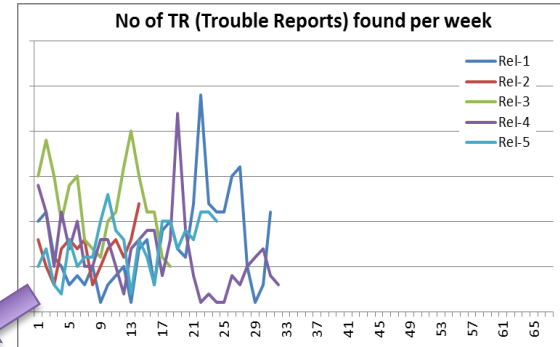
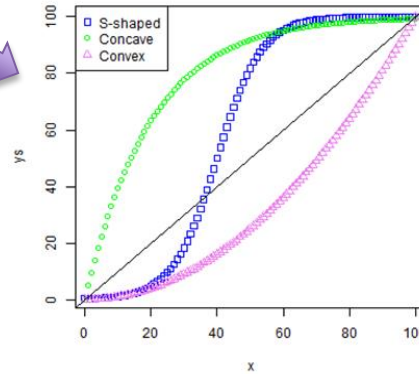
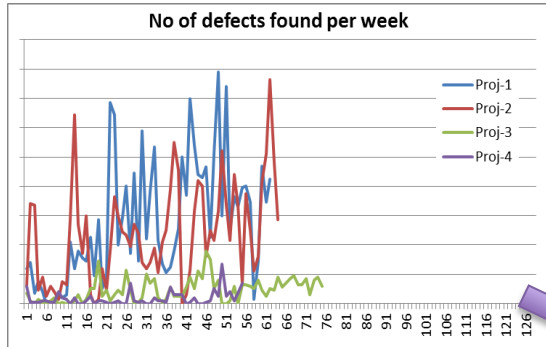
Rakesh Rana

Number of defects / trouble reports (TRs)





Using predicted shape to choose a better model

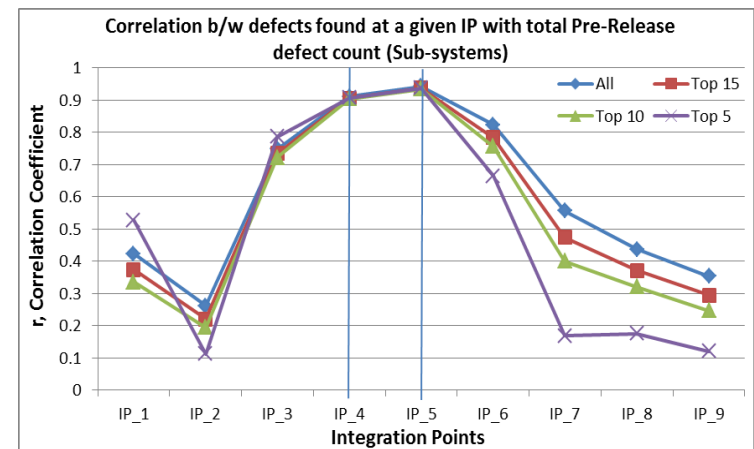
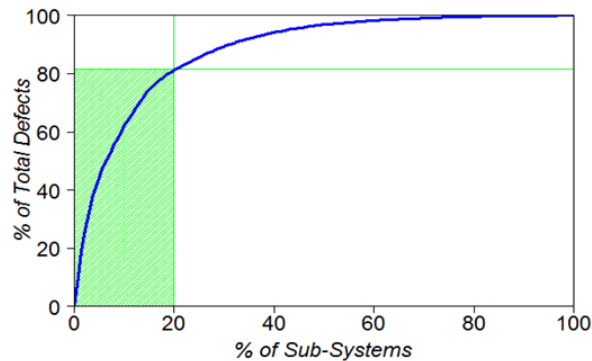


Predicted shape of defect inflow profile	Recommended SRGMs	
	For testing resource(s) allocation	For release readiness assessment using current project data
S-shape	Logistic	Logistic
Concave	Gompertz	Gompertz
Convex	Delayed-S	Logistic

Correlation based defect prediction

Empirical Evaluation at Function (Feature) and ECU (Sub-System) level

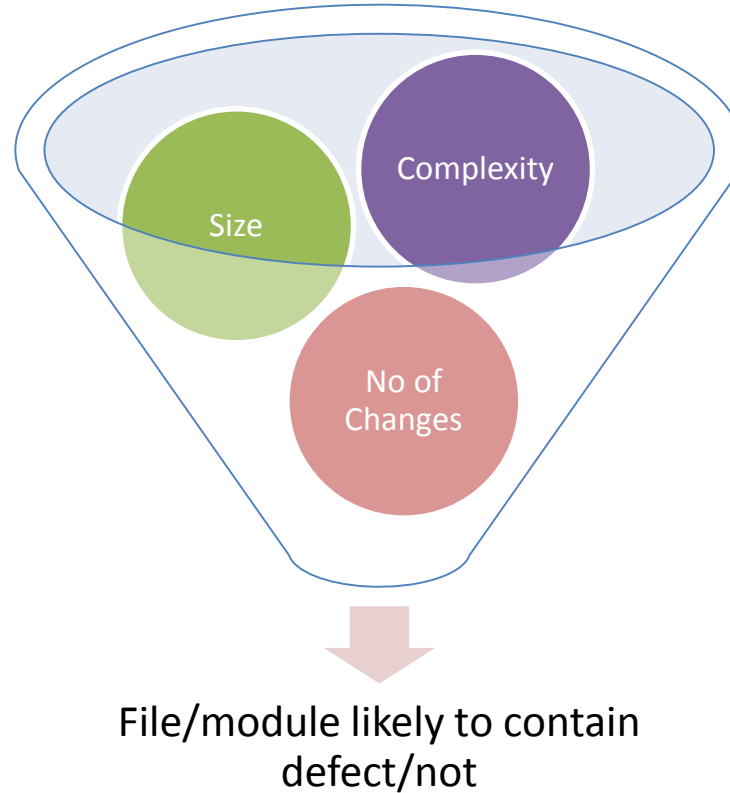
- Confirmed the Pareto principle of defect distribution (20-60 rule) for automotive software projects,
- Correlation between defects count in consecutive integration points - not found to be strong, and
- Evidence for strong correlation between number of defects found at IP₄/IP₅ with total pre-release defect count.





Defect Predictions/ Classification

- Predicting which files/modules are most likely to have a defect:
 - Regression Models
 - Machine Learning Models



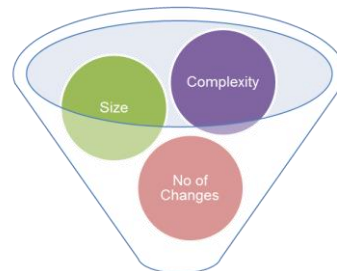
Defect Predictions/ Classification

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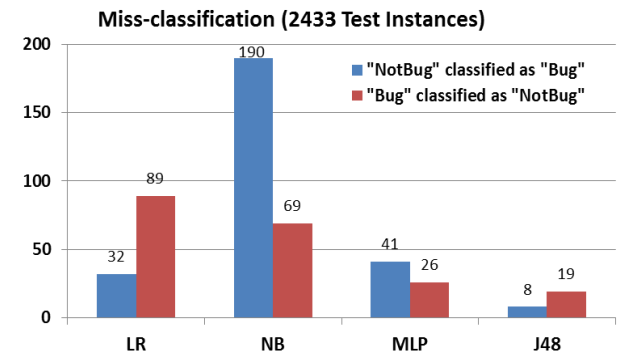


Audi

fieldname	comment
filename	filename
project_name	subproject name
hash	md5 file hash
lm_LOC	LOC
lm_SLOCP	Physical Executable LOC
lm_SLOCL	Logical Executable LOC
lm_MVG	McCabe VG Complexity
lm_BLOC	Blank LOC
lm_CNSLOC	Code and Comment LOC
lm_CLOC	Comment Only LOC
lm_CWORD	Commentary Word
lm_HCLOC	Header Comment LOC
lm_HCWORD	Header Commentary Words
h_N1	number of total operators
h_N2	number of total operands
h_n_1	number of unique operators
h_n_2	number of unique operands
h_V	Halsted volumen
h_D	Halsted difficulty
h_E	Halsted effort
class	file classified as containing "Bug", or "NoBug"



File/module likely to contain defect/not





Thank You

- For more information on:
 - Analysing defect inflow data,
 - Release readiness assessment, or
 - Using metrics for process improvement.
- Contact:
 - Research theme: **Metrics**
 - Miroslaw Staron, Miroslaw.Staron@cse.gu.se
 - Rakesh Rana, Rakesh.Rana@cse.gu.se