Toronto Fire Services Incident Data: Revisited By Geoffrey Clark, for Dr. Ceni Babaoglu October 2nd, 2018

Methodology: Compare model trained with ROSE data vs. model trained with randomly sampled data. Both datasets created by sampling 60% of entire dataset. Classifier used was logistic regression with below formula and threshold of 0.5.

```
\label{logistic_bal} $$\operatorname{model_logistic\_bal} <- \operatorname{glm}(\operatorname{CRITICAL} \sim ., \operatorname{data=I\_s\_ROSE}, \operatorname{family=binomial}(\operatorname{link="logit"})) $$\operatorname{model_logistic\_imb} <- \operatorname{glm}(\operatorname{CRITICAL} \sim ., \operatorname{data=I\_s[full\_idx\$train,]}, \operatorname{family=binomial}(\operatorname{link="logit"}))$$
```

	Original Data (%)			ROSE Data (%)		
Accuracy	97.4			91.8		
False-Negative Rate	56.9			19.1		
Precision	89.4			31.3		
Recall	43.0			80.8		
F1-Score	58.1			45.2		
Confusion Matrix		0	1		0	1
	0	126544	3131	0	117092	1051
	1	280	2369	1	9730	4448