



Contribution ID: 272

Type: **not specified**

Feedback Style and Engineer Productivity

Friday 12 December 2025 10:45 (45 minutes)

This paper studies how a maintainer's tone when giving feedback to engineers affects individual productivity and output quality. We construct a novel panel dataset that links software engineers and maintainers to their email communications and code contributions on the largest open source software project, the Linux kernel. We identify tones used in the emails (e.g., toxic, polite, encouraging) using natural language processing and machine learning techniques. Additionally, to control for the informativeness of feedback, we fine-tune a large language model (GPT-2) and use the token probabilities it generates to construct measures of entropy and surprisal. We find a strong negative relationship between toxicity and engineer productivity. Using an instrumental variables design to address endogeneity in a maintainer's choice of tone, we find that receiving toxic feedback from a maintainer reduces the likelihood that an engineer completes a programming task, increases the amount of time to task completion, and decreases the likelihood that an engineer completes more tasks in the next 30 days.

Primary authors: JAHNKE, Calvin (Princeton University); TSAO, Carolyn (Microsoft Research); NYEKI, Gabor

Presenters: JAHNKE, Calvin (Princeton University); TSAO, Carolyn (Microsoft Research); NYEKI, Gabor

Session Classification: LPC Refereed Track

Track Classification: LPC Refereed Track