

# Human Intelligence in Search and Retrieval

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Crowdsourcing has developed to become a magic bullet for the data and annotation needs of modern day IR researchers. The number of academic studies as well as industrial applications that employ the crowd for creating, curating, annotating or aggregating documents is growing steadily. Aside from the multitude of scientific papers relying on crowd labour for system evaluation, there has been a strong interdisciplinary line of work dedicated to finding effective and efficient forms of using this emerging labour market. Central research questions include **(1)** Estimating and optimizing the reliability and accuracy of often untrained workers in comparison with highly trained professionals [1]; **(2)** How to identify or prevent noise and spam in the submissions [4]; and **(3)** How to most cost-efficiently distribute tasks and remunerations across workers [2]. The vast majority of studies understands crowdsourcing as the act of making micro payments to individuals in return for compartmentalized units of creative or intelligent labour.

*Gamification* proposes an alternative incentive model in which entertainment replaces money as the motivating force drawing the workers [3]. Under this alternative paradigm, tasks are embedded in game environments in order to increase the attractiveness and immersion of the work interface. While gamification rightfully points out that paid crowdsourcing is not the only viable option for harnessing crowd labour, it is still merely another concrete instantiation of the community's actual need: A formal worker incentive model for crowdsourcing. Only by understanding individual motivations can we deliver truly adequate reward schemes that ensure faithful contributions and long-term worker engagement. It is unreasonable to assume that the binary *money vs. entertainment* de-

cision reflects the full complexity of the worker motivation spectrum. What about education, socializing, vanity, or charity? All of these are valid examples of factors that compel people to lend us their work force. This is not to say that we necessarily have to promote *edufication* and all its possible siblings as new paradigms, they should merely start to take their well deserved space on our mental map of crowdsourcing incentives.

In this talk, we will cover a range of interesting scenarios in which different incentive models may fundamentally change the way in which we can tap the considerable potential of crowd labour. We will discuss cases in which standard crowdsourcing and gamification schemes reach the limits of their capabilities, forcing us to rely on alternative strategies. Finally, we will investigate whether crowdsourcing indeed even has to be an active occupation or whether it can happen as a by-product of more organic human behaviour.

## References

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