

*Volatile quality and availability? How much can you deal with?*  
[a]2: TODO:

1. Crowdwork's perspective.
2. Piecework's perspective.
3. What's changed.

]

## References

- [1] L. Elisa Celis et al. "Assignment Techniques for Crowdsourcing Sensitive Tasks". In: *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing*. CSCW '16. New York, NY, USA: ACM, 2016, pp. 836–847. ISBN: 978-1-4503-3592-8. DOI: [10.1145/2818048.2835202](https://doi.org/10.1145/2818048.2835202). URL: <http://doi.acm.org/10.1145/2818048.2835202>.
- [2] Justin Cheng et al. "Break it down: A comparison of macro-and microtasks". In: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. ACM. 2015, pp. 4061–4064.
- [3] Ujwal Gadiraju et al. "Understanding Malicious Behavior in Crowdsourcing Platforms: The Case of Online Surveys". In: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. CHI '15. New York, NY, USA: ACM, 2015, pp. 1631–1640. ISBN: 978-1-4503-3145-6. DOI: [10.1145/2702123.2702443](https://doi.org/10.1145/2702123.2702443). URL: <http://doi.acm.org/10.1145/2702123.2702443>.
- [4] Panagiotis G. Ipeirotis, Foster Provost, and Jing Wang. "Quality Management on Amazon Mechanical Turk". In: *Proceedings of the ACM SIGKDD Workshop on Human Computation*. HCOMP '10. Washington DC: ACM, 2010, pp. 64–67. ISBN: 978-1-4503-0222-7. DOI: [10.1145/1837885.1837906](https://doi.org/10.1145/1837885.1837906). URL: <http://doi.acm.org/10.1145/1837885.1837906>.
- [5] Shamsi T. Iqbal and Brian P. Bailey. "Effects of Intelligent Notification Management on Users and Their Tasks". In: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. CHI '08. New York, NY, USA: ACM, 2008, pp. 93–102. ISBN: 978-1-60558-011-1. DOI: [10.1145/1357054.1357070](https://doi.org/10.1145/1357054.1357070). URL: <http://doi.acm.org/10.1145/1357054.1357070>.
- [6] Ranjay A. Krishna et al. "Embracing Error to Enable Rapid Crowdsourcing". In: *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*. CHI '16. New York, NY, USA: ACM, 2016, pp. 3167–3179. ISBN: 978-1-4503-3362-7. DOI: [10.1145/2858036.2858115](https://doi.org/10.1145/2858036.2858115). URL: <http://doi.acm.org/10.1145/2858036.2858115>.
- [7] Walter S. Lasecki et al. "The Effects of Sequence and Delay on Crowd Work". In: *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. CHI '15. New York, NY, USA: ACM, 2015, pp. 1375–1378. ISBN: 978-1-4503-3145-6. DOI: [10.1145/2702123.2702594](https://doi.org/10.1145/2702123.2702594). URL: <http://doi.acm.org/10.1145/2702123.2702594>.
- [8] Steven Tolliday and Jonathan Zeitlin. *Between fordism and flexibility*. Oxford, 1986.
- [9] Rajan Vaish et al. "Low Effort Crowdsourcing: Leveraging Peripheral Attention for Crowd Work". In: *Second AAAI Conference on Human Computation and Crowdsourcing*. 2014.

A number of researchers have identified worker attrition, variability of worker performance, and uncertainty about good versus bad-faith actors as open questions of crowdwork [3, 4]. [a2: We can and should discuss the distinction between presumably “bad faith” workers & workers who are merely responding in kind to bad requesters — and the broader questions surrounding the roles that requesters as well as workers should play — but let it suffice to say that requesters have been trying to understand and manage what appears to them as inconsistent work. Their ways of responding to that variance in work quality has largely involved making the work more flexible and resilient to work (although some work has gone into investigating the causes, rather than treating the symptoms)]

Earlier we discussed Cheng et al.’s work measuring the impact that interruption has on worker performance [2]. This work illustrates a broader sentiment in both the study and practice of crowdwork, that microtasks should be designed resiliently against the variability of workers, fully exploiting the abstracted nature of each piece of work [5, 7, 9]. That is to say, micro-tasks should be designed such that a single worker’s poor performance, or a good worker’s sudden departure, does not significantly impact the agenda of the work as a whole. While Cheng et al. found costs with breaking tasks into smaller components in the form of higher cumulative time to complete (albeit much shorter real time to complete, owing to parallelization), Lasecki et al. found that at least *some* performance can be recouped by stringing similar tasks together [2, 7, respectively].

Krishna et al. take a different approach; by “embracing error” and forming models describing the latency of workers in classifying objects at rapid speeds, the authors offer orders-of-magnitude improvements in various binary classification tasks [6]. And rather than building tasks to *tolerate* worker drop-off and attrition, some researchers have designed work predicated on the expectation of it instead: Celis et al. describe ways of assigning tasks in such a way that crowd workers would never be given enough information to piece together sensitive information about any single topic [1].

The work thus far seems to attempt to maximize the quality of work among workers through various means: 1) Identifying “bad” workers (fraught with problems as this characterization is) [3], 2) Designing tasks with break points to facilitate the on-boarding and off-boarding that happens anyway [2], and 3) Expecting certain levels of attrition and incorrectness and using that variability to their advantage [6].

Flexibility has been explored through the lens of Fordism, perhaps best illustrated by Tolliday and Zeitlin’s treatment describing turnover rates rising above 300% in the decade leading to the introduction of the assembly line in 1913. Specifically, the utilization of “... ‘semi-special’ machine tools which could be adapted [and] ... added flexibility through seasonal layoffs for production workers and the use of piece rates ... rather than a day wage system” [8].

In the field of piecework, the research covering this topic has both explored a breadth of tasks that might be rendered doable

by piecemeal workers *as well as* longitudinally documented the success of these approaches. Here, we