



## Interface for collecting answers to equivocal questions for crowdsourcing

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# Interface for collecting answers to equivocal questions for crowdsourcing

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Workshop Visualization & HCI for Crowd-Sourcing  
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UMR

IRISA



Centre de Recherche en Informatique,  
Signal et Automatique de Lille



# The project

## Scientific standing

- The difficulty of establishing a data collection system to collect reliable and relevant data
- The impossibility for contributors to express their contribution in detail in the event of indecision due to the limitations of the expression possibilities of the response collection interface.
- Data imperfections cannot be modeled and integrated into the information fusion process for optimal decision-making.

## 3 phases

- Uncertainty
- Imprecision
- Both uncertainty and imprecision

# Members of the project



Arnaud MARTIN  
Jean-Christophe DUBOIS  
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Pierrick URO

# Phase 1: Uncertainty

Which segment is the tallest?

• • • • •

•

What is your certitude?

Totally uncertain    Uncertain    Slightly uncertain    Neither certain nor uncertain    Slightly Certain    Certain    Totally certain

•    •    •    •    •    •

•

Validate

Progress bar: 10% complete

# Crowdsourcing campaign

## 2 campaign on Figure Eight platform [1]

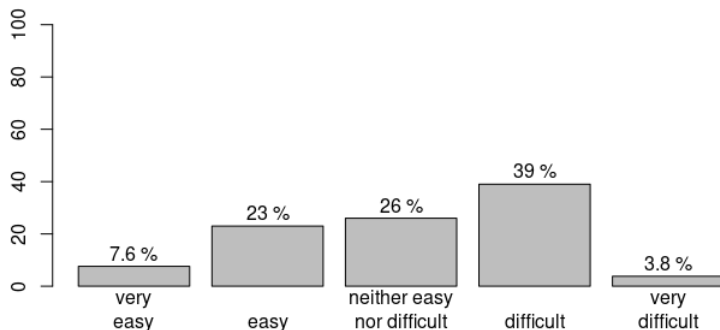
- 1st campaign: 25 contributors of area 3 (the most serious ones)
- 2nd campaign: 107 contributors of area 1 (area 1 includes contributors of both 2 and 3)
- 3 HITs composed of 30 questions
- 2 different sets of delta
  - $\text{delta0} = [0, 300, 600, 900, 1200, 1500]$
  - $\text{delta1} = [0, 300, 600, 1200, 1800, 2400]$

Half of the contributors (66) performed the campaign with delta0 and the other half with delta1

Total data =  $(107 + 25) * 3 * 30 = 11880$

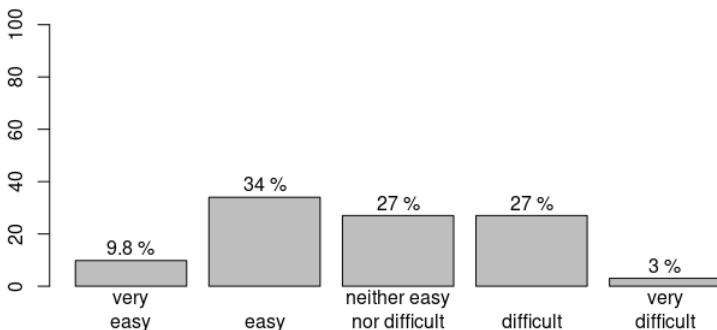
# Difficulty selecting the segment

**For you specify the longest segment was:**



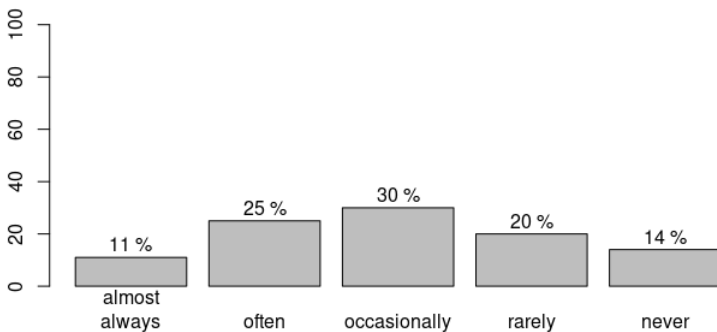
## Difficulty to express certainty

**For you to express your certainty was:**

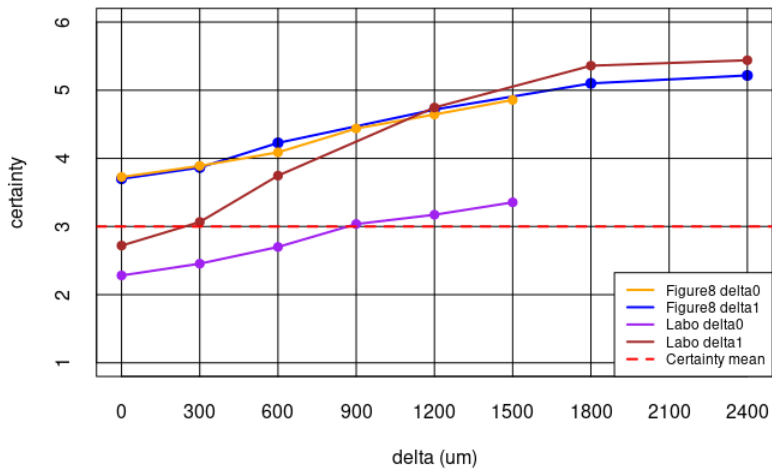




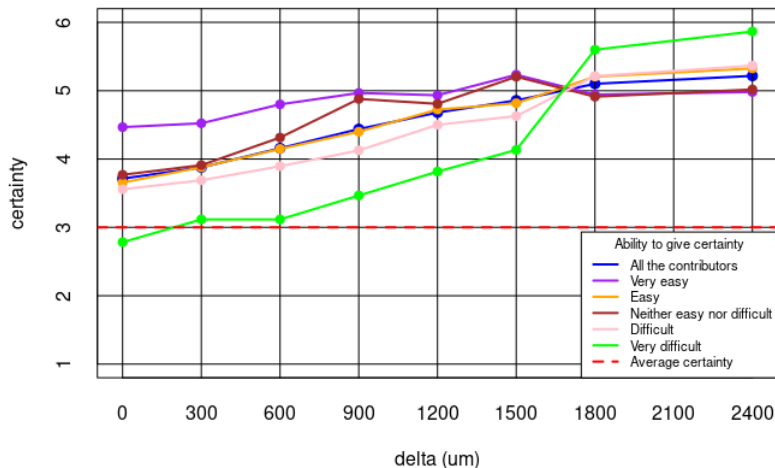
## Did you hesitate before answering?



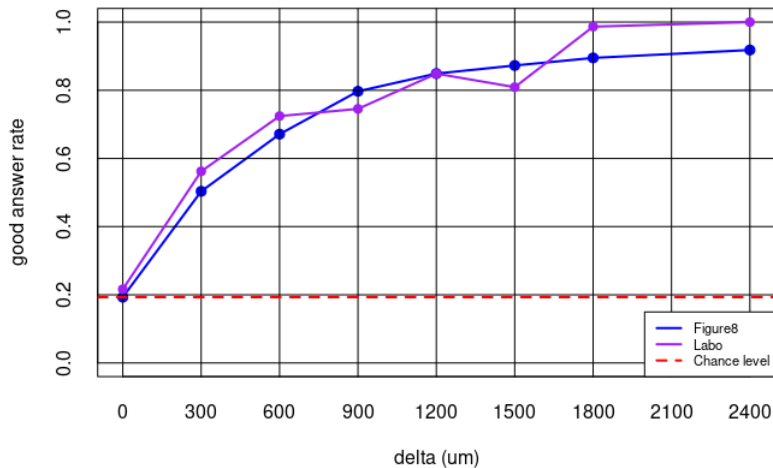
# Certainty



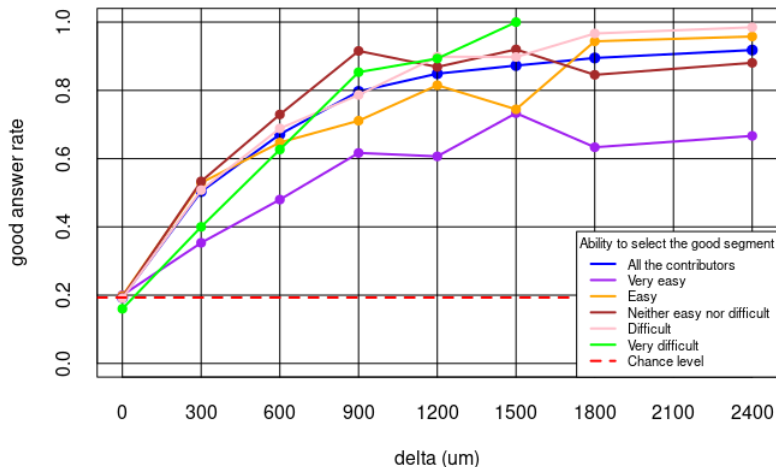
## Group of contributor certainty



# Good answers



## Group of contributors according to their ability perceived to choose the good answer



# Headworks [2]

- ANR project (2016-2021)
- Complex crowdsourcing systems
- Partners : Cesco (Musée National d'Histoire Naturelle), Wirk (FouleFactory), Valda (INRIA Paris), Druid (Rennes 1), Links (Inria-Lille), Sumo (Inria-Bretagne)



# Conclusion

- Contributors are not accustomed to giving their certainty in their response
- The certainty provided is strongly correlated with the difficulty of the task
- The correct response rate is also correlated with the difficulty of the task

- [1] Figure eight web site.  
<https://www.figure-eight.com/>.  
Accessed: 2019-06-10.
- [2] Anr headworks web site.  
<http://headwork.gforge.inria.fr/software>.  
Accessed: 2019-06-18.