

# Visual Secrets: A recognition-based security primitive and its use for boardroom voting

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*Preliminary question, why would this image be there ?* ⇒



# Pushing for verifiability

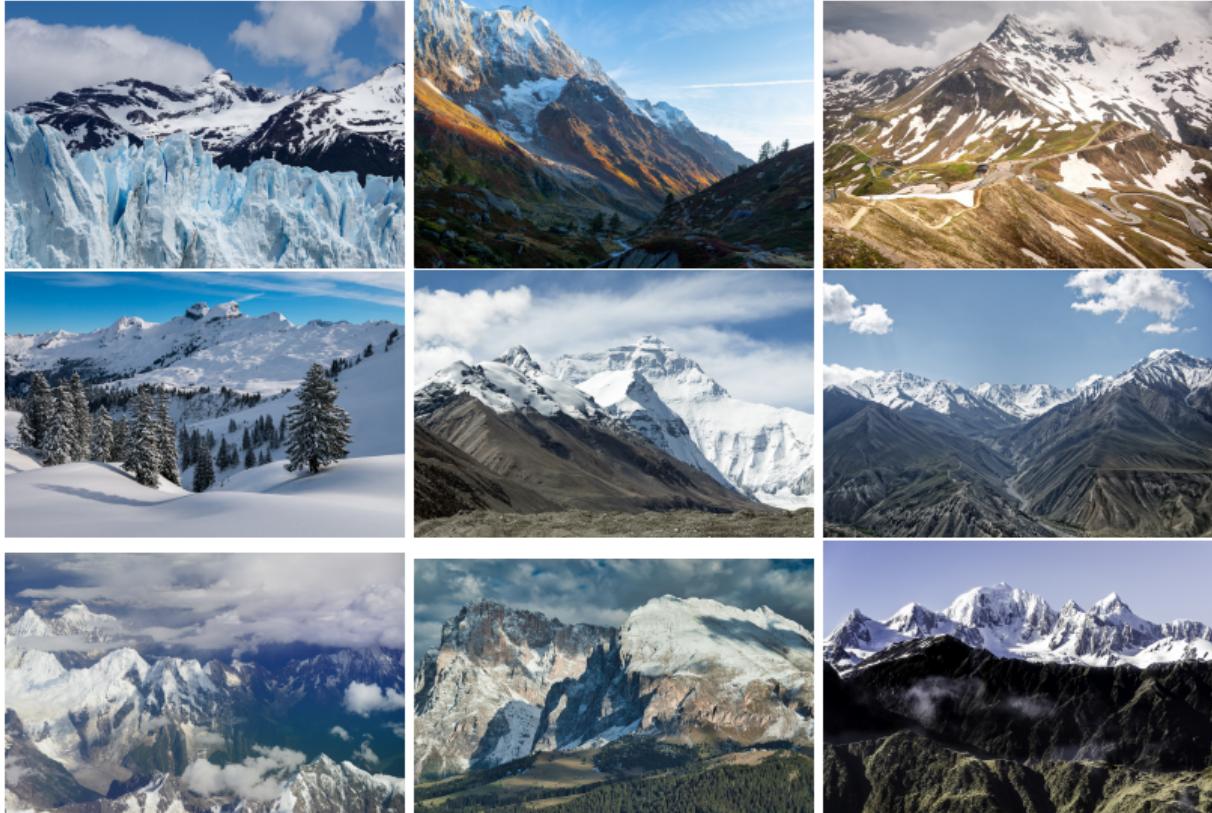
- People don't always understand its advantages
- The verifiable voting systems can be very hard to use (<60% task completion rate on PaV, Scantegrity, Helios)
- Distrust against voting technologies

## Why low-tech voting?

- More familiarity for many voters
- Bounded complexity so more understandable
- No black box so less distrust
- Cheaper on a small scale
- Can be a stepping stone to better systems

## Quiz time: visual secrets

# Visual secrets



- *Recognisability*: if presented with your own secret at a later point, you can recognise it with high probability (even among many)
- *Non-describability*: You can't efficiently give someone else the means to recognise your secret

# Memory performance

Subject memory performance on full memory test (expected baseline ~5%)

	Correct	False positive	False negative	Complex errors
Lion	125 (83%)	12	6	8
Mountain	130 (86%)	8	10	3
Abstract	120 (79%)	12	9	10

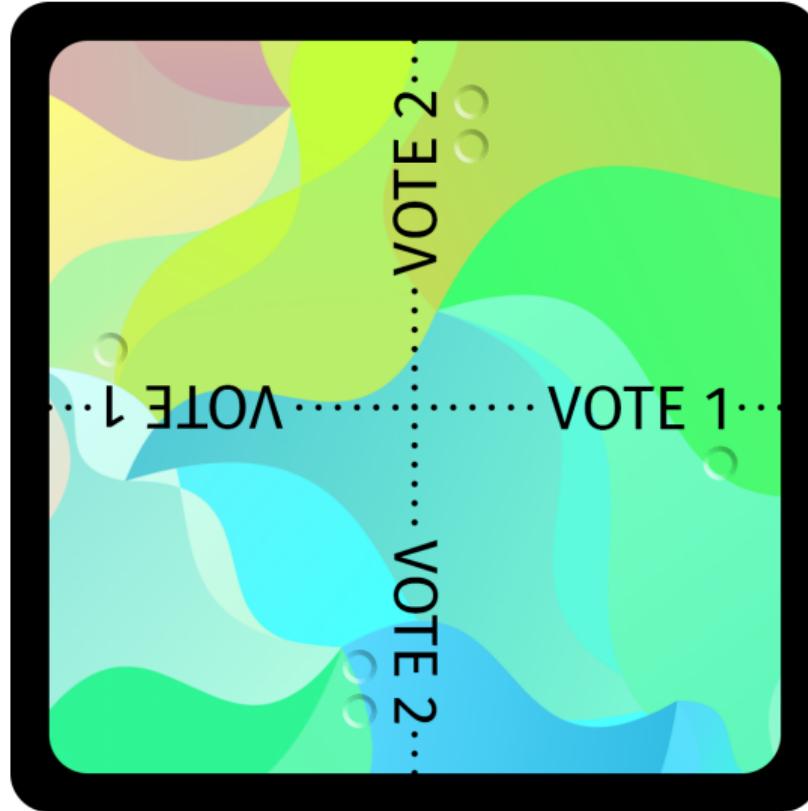
## Accuracy from non-trivial descriptions

	Assessor	Lion	Mountain	Abstract
All descriptions	Strict	59% (89)	55% (83)	50% (76)
	Lenient	92% (139)	78% (118)	76% (115)
Non-trivial descriptions	Strict	54% (72)	52% (75)	43% (56)
	Lenient	89% (102)	75% (97)	67% (72)

## Non-ambiguous accuracy

	Assessor	Lion	Mountain	Abstract
Correctly unambiguous	Strict	30	37	35
	Lenient	27	21	7
Wrongly unambiguous	Strict	17	12	16
	Lenient	8	4	3
Unambiguous accuracy	Strict	64%	76%	69%
	Lenient	77%	81%	70%

# Ballot design



## Future work

To do :

- Test ballots with visual secrets in practice
- Further study the recognizability and describability
- Optimise the image choice
- Scale VVB up? (larger series, several visual secrets...)

Thank you for your attention!

Questions?

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