

# PERFORMANCE CALIBRATION THROUGH PARTLY PEER ASSESSMENT

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- 1 Introduction
- 2 Results and analysis
- 3 Conclusion and future work

# Challenging teaching in a university

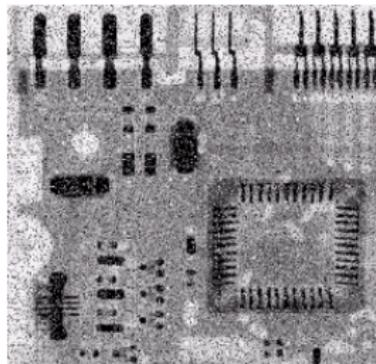
Real world:

- Techniques
- Products
- Life style
- Job market/requirements
- ...

Students:

- Background
- Commitment
- ...

# CS241: Image processing



- Restore images
- Enhance images
- Understand images

# Assessment

- Absolute performance measurement
  - We teach
  - We test
  - They test
- Relative performance measurement
  - Fix the average of the class
  - Fix the first class rate of the class
- Combination of the above

# The teaching of the module

- 15 lectures: introduction, mathematics, color space, image formation, image compression, image enhancement, texture, and image classification
- 3 workshops: module assessment, programming, and image segmentation

# The assessment of the module

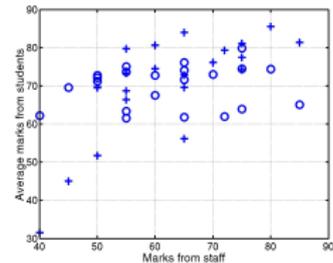
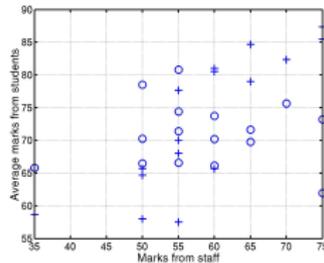
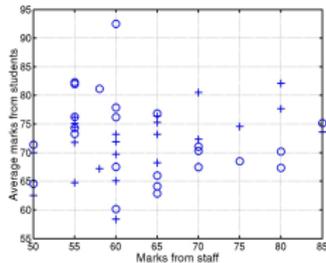
40%	Demonstration (To be assessed at the demo to the peer group)	Maximum	Awarded
	Problem statement	15%	
	Algorithm summary	15%	
	Sensible output	40%	
	Quantitative results	20%	
	Clarity and coherence of the demonstration	10%	
60%	Quality of paper	100%	
	Project statement	10%	
	Description of relevant algorithms and techniques	20%	
	Experimental outline	10%	
	Quantitative results	15%	
	Qualitative results	15%	
	Conclusion	10%	
	Bibliography	5%	
	Wow factor	15%	
	Total		

# Actual assessment

- Topic release: mid October
- Topic collection: early November
- Demonstration schedule: mid November
- Actual demonstration: late November to early December
- Each demo consists of 10 minutes: 5 minutes' demo plus 5 minutes' Q/A
- All sessions are compulsory. The absence of one session will lead to a deduction of 5% of the total marks of the module

# Correlation/validity analysis

Scatter plot of marks from the teaching staff and the averages of students



Plus signs: receiving (student performance from the class)

Circle signs: giving (class average)

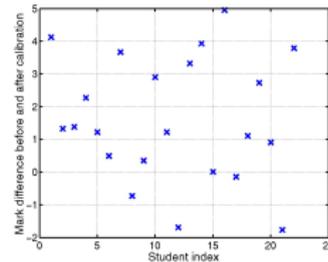
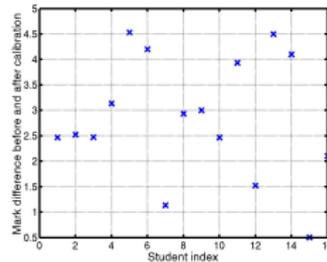
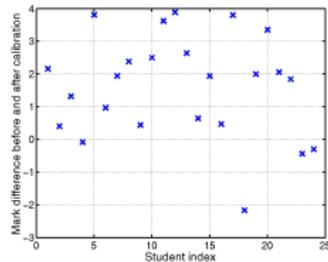
From left to right: 2014-2015, 2013-2014, 2012-2013

# Correlation analysis

The average marks received (AMR), from staff (AMS), and giving (AMG) by a number N of students in different academic years and their correlation coefficient C

AY	N	AMR	AMS	AMG	C(AMR, AMS)	C(AMS, AMG)	C(AMR, AMG)
2014-2015	24	71.93	63.45	72.48	0.52	-0.23	-0.36
2013-2014	16	72.51	58.44	71.03	0.83	0.00	-0.01
2012-2013	23	70.38	62.14	69.77	0.72	0.13	0.10

# The effect of calibration on individual students



From left to right: 2014-2015, 2013-2014, 2012-2013

# Effect of calibration on the class

The average and standard deviation of marks of the class with (AW and SDW) and without (AO and SDO) calibration of performance from the peer marking of demonstration in different academic years

AY	AW	SDW	AO	STO
2014-2015	56.52	13.79	54.95	13.57
2013-2014	55.88	14.95	53.20	14.69
2012-2013	56.27	16.84	54.73	16.71

## Conclusion

- The average marks of the class for a student is highly correlated with those given by a teaching staff
- The average marks of the class can be used to calibrate/rectify the performance of students
- The marks given by students (class performance) do not correlate with those of the teaching staff or received for different students
- Peer assessment does encourage students to engage with the assessment and their learning

## Future work

- The marks received may be manipulated for better performance calibration of students: the marks from some students are not reliable and represent outliers
- The peer marking of demonstration may be adapted to the assessment of a module on other means: assignment, even exam papers

## Main references

- Biggs, J. (2003). Aligning teaching and assessing to course objectives. Learning and Teaching Support Centre, <https://www.heacademy.ac.uk/sites/default/files/biggs-aligning-teaching-and-ssessment.pdf>
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- Falchikov, N., Goldffnch, J. (2000) Student self-assessment in higher education: a meta-analysis. Review of Educational Research, 70(3), 287-322.
- Langan, A.M. and Wheeler, C.P. (2003) Can students assess students effectively? Some insights into peer assessment. Learning & Teaching in Action, 2(1).

# Questions

- Thank you for your attention.
- ANY QUESTIONS?