

Electronic passport and biometrics, winter 2006
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11. Exercise sheet

Hand in solutions until Tuesday, 30 January, 12¹⁵.

The exam will take place on Friday, 02 March 2007, 10⁰⁰–12^{xx}. The following hints will be on the exam:

Verify whether your exam exercise sheets are complete: It should contain Exercise 1 to Exercise ??. Insert your name and matrikel (student number) **on each sheet**. Approaches, solutions and all side calculations must be written to the given paper. Please use also the back sides. If you need extra paper ask the survisor. **Do not remove the staple!**

Do write with blue or black ink!

Do NOT use a pencil or any other erasable pen.

The exam must be handled independently. Permitted auxiliary means are: writing materials, a pocket calculator (non-programmable, without division with remainder, without linear algebra software), and a cheat sheet, DIN A4, two-sided, written only with your own handwriting. Any other utilities, even own paper, are not permitted.

An attempt at deception leads to failure for this exam and possibly other measures — even if the attempt is only detected later.

Exercise 11.1 (Legal situation in Germany). (0+6 points)

Find out more about fingerprint relevant legislation in Germany.

- (i) Which fundamental rights are touched? +2
- (ii) Which information may be stored without or with knowledge or approval, respectively²? +2
- (iii) Was it necessary to adapt laws to enable the storage of fingerprints in the new electronic passport? +1
- (iv) Which reasons did the parliament convince to accept? +1

Exercise 11.2 (Evaluation of Fingerprint Verification Algorithms). (0+4 points)

Read chapter 6 in Wayman, Jain, Maltoni & Maio (2005) about FVC2002 or consult <http://bias.csr.unibo.it/fvc2004/> about FVC2004. Four test sets of fingerprints were used.

+1

(i) How large were the test sets? How have these test sets been generated?

+1

(ii) It turned out that the first two were much 'easier' than the third one. Why?

+1

(iii) Explain what the EER is.

+1

(iv) How 'good' are the competing algorithms?

References

JAMES WAYMAN, ANIL JAIN, DAVIDE MALTONI & DARIO MAIO (editors) (2005). *Biometric Systems. Technology, Design and Performance Evaluation*. Springer, London. ISBN 1-85233-596-3.

