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# Decentralized Document Management

Master's thesis at the Hochschule Ulm Computer Science Department Master Information Systems

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# **Declaration of Originality**

I hereby declare that this thesis is entirely the result of my own work except where otherwise indicated. I have only used the resources given in the list of references.

 $3^{\rm rd}$  April, 2017

Emmanuel SCHWARTZ

### Abstract

# Acknowledgements

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### Introduction

### Related Work

Obwohl die Grundlagen l"angst bekannt sind, ...

### Method

### 3.1 Einbinden einer Grafik

### 3.1.1 Standard-Grafik

Ein Leuchtturm in den typischen Farben ist in Abbildung 3.1 gezeigt.



Figure 3.1: Der Leuchtturm von irgendwo.

Zwei weitere Leuchttrme sind in Abbildung 3.2 gezeigt.





Figure 3.2: Weitere Leuchttrme.

#### 3.1.2 Mathematik

**Lemma 1 (covariance enclosure)** The covariance  $cov(X_a)$  is smaller in all directions than  $cov(X_b)$  if and only if  $cov(X_b) \succeq cov(X_a)$ .

*Proof:* So-called k-sigma contours provide a convenient graphical representation of a random variable  $X_a$ . The k-sigma contour of  $X_a$  is defined by the points

$$(\mathbf{x} - E(X_a))^T \operatorname{cov}(X_a)^{-1} (\mathbf{x} - E(X_a)) = k$$

This term defines an ellipse for two dimensions respectively an hyperellipsoid for higher dimensions. The covariance  $cov(X_a)$  is smaller than  $cov(X_b)$  in all directions if the corresponding k-sigma contour of  $X_a$  is completely enclosed by the k-sigma contour of  $X_b$ . This is equivalent to

$$(\mathbf{x} - \mathbf{c})^T \operatorname{cov}(X_a)^{-1} (\mathbf{x} - \mathbf{c}) \ge (\mathbf{x} - \mathbf{c})^T \operatorname{cov}(X_b)^{-1} (\mathbf{x} - \mathbf{c})$$
  
 $\operatorname{cov}(X_a)^{-1} \succeq \operatorname{cov}(X_b)^{-1}$   
 $\operatorname{cov}(X_b) \succeq \operatorname{cov}(X_a)$ 

### 3.1.3 Beispiel URL

Hier ist der Link: http://www.rz.fh-ulm.de/~cschlege

#### 3.1.4 Tabelle

No.	Supported Feature	Octet	Bit
0	Flow Control Mode	0	0
1	Retransmission Mode	0	1
2	Bi-directional QoS	0	2
31	Reserved for feature mask ext.	3	7

Table 3.1: Eine Tabelle.

### 3.1.5 Literatur

Eine ausfhrliche Darstellung findet sich in [?].

### Results

### Conclusion and Future Work

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