Contents

Chapter 1

Title of My Seminar Work

My Name

This is the abstract. It fits pretty much on one page and is definitely not longer.

Contents

1.1   This is My First Section

You only apply changes to the folder with your respective talk number. This means that if your talk has number X you place all your files, e.g., pictures, **exclusively** in folder `TalkX`. The (main) text of your seminar work goes in `Seminar-Arbeit.tex` in that folder. Please use file `Example.tex` as a basis. Formatting, page settings, and the file `talk.tex` must not be changed.

Do not – under no circumstances – change the file `talk.tex`. If it is impossible to avoid the use of further packages (or modify the preamble in any other way) you may apply these modifications to `TalkX/MyHeader.tex`. However, in this case it is important to consult your advisor beforehand, as LaTeX does not contain namespaces, which may result in conflicts between different packages.

1.2   Report Structure

Your seminar report is contained in a chapter (`\chapter`), wherefore you may use commands `\section{}`, `\subsection{}`, and `\subsubsection{}` to structure it.

In general, breaks need to be separated by an empty line but not `\\` or `\newline`. Please do not use `\newpage`, `\clearpage` etc.

Enumerations with and without numbers can be generated by use of the following commands:

```
\begin{enumerate}
  \item ...
  \item ...
\end{enumerate}

\begin{itemize}
  \item ...
  \item ...
\end{itemize}
```

For descriptions, the following command is suited:

```
\begin{description}
  \item[Term] Description
  \item[Term] Description
\end{description}
```

1.3   Pictures and Tables

Please embed **all** pictures without suffix and save the respective picture as `.jpg` or `.pdf` in folder `TalkX`. To embed pictures the following command can be used:

```
\begin{figure}[ht]
  \begin{center}
  \includegraphics[scale=0.6]{TalkX/filename}
  \end{center}
  \caption{Caption}
  \label{label}
\end{figure}
```


Figure 1.1: Caption

Do always use relative paths to embed pictures! To scale pictures you can also use `[width=4cm]` or `[width=0.6\textwidth]` instead of `[scale=0.6]`. All pictures to be included in the seminar work need to be generated with a resolution of at least 600dpi.

Table 1.1: Caption

	A	B	C
X	1	2	3
Y	4	5	6
Z	7	8	9

Table **??** can be generated by the following command.

```
\begin{table}
  \caption{Caption}
  \label{tab:label}
  \begin{center}
  \begin{tabular}{|c|c|c|c|} \hline
       & A & B & C \\ \hline\hline
     X & 1 & 2 & 3 \\ \hline
     Y & 4 & 5 & 6 \\ \hline
     Z & 7 & 8 & 9 \\ \hline
  \end{tabular}
  \end{center}
\end{table}
```

Pictures and tables need to have a caption (`\caption`) and be referenced from within the running text by use of `\ref{label}`. In general, `caption` has to appear below pictures, but above tables!

1.4 Bibliography

The bibliography is placed at the end of your chapter. **Do not use marks on your bibitems** as the automatically generated marks [1],[2],... are used. For each reference the informations authors, title, publisher, and release date must be stated in the following form:

```
\bibitem {label} N. Author: Title of the document; Type of document
   (technical report, deliverable, Workshop/Conference Name ...),
   (Location, Vol. X, No. Y), Month, Year, pages, URL (if available).
```

```
\bibitem {label} Website title; \url{Website URL}, Month, Year of last visit.
```

If the reference uses an URL the latter must be given by `\url{http://...}`.

In running text, bibitems are referenced by the use of `\cite{label}`. For all papers, pictures and other works references need to appear at the according position.

A detailed instruction to the correct use of references can be found in *Guideline to Written Seminar Works* [**?**].

1.5 Compiling

LATEX is included in all popular Linux distributions. Under Linux, the document is compiled by executing `pdflatex talk.tex` in the main directory, which generates `talk.pdf`.

For Windows, the TEX implementation MiKTeX (`http://www.miktex.org/`) in combination with the LATEX tool TeXnicCenter (`http://www.toolscenter.org/`) is recommended. For Mac OS X, the TEX implementation MacTeX (`http://tug.org/mactex/`) in combination with the LATEX tool TeXShop (`http://pages.uoregon.edu/koch/texshop/`) is recommended.

Problems, proposals, and questions regarding the generation of your document can be sent by email to your supervisor. To submit your seminar talk compress (`zip` oder `tar`) the directory `TalkX` and mail it to your supervisor.

Bibliography

[1] Martin Waldburger, Patrick Poullie, Burkhard Stiller: *Guideline for Seminar Reports*, Communication Systems Group, Department of Infromatics, University of Zurich, January 2013. `http://www.csg.uzh.ch/teaching/guideline-seminar-report-v05.pdf`.

Chapter 2

Investigating the Blockchain Technology in the Context of Cybersecurity

Lenz, Roland, Pascal, Silas

This is the abstract. It fits pretty much on one page and is definitely not longer.

Contents

2.1 My Section

2.1.1 My Subsection

2.1.1.1 My SubSubsection

2.2 Bibliography

Bibliography

[1] K. G. Claeys, P. Dupont, L. Cornette, S. Sunaert, P. Van Hecke, E. De Schutter, and G. A. Orban, "Color discrimination involves ventral and dorsal stream visual areas," *Cerebral Cortex*, vol. 14, no. 7, pp. 803–822, 2004.

[2] A. Azaria, A. Ekblaw, T. Vieira, and A. Lippman, "MedRec: Using blockchain for medical data access and permission management," *Proceedings - 2016 2nd International Conference on Open and Big Data, OBD 2016*, pp. 25–30, 2016.

[3] A. Dorri, M. Steger, S. S. Kanhere, and R. Jurdak, "BlockChain: A Distributed Solution to Automotive Security and Privacy," *IEEE Communications Magazine*, vol. 55, no. 12, pp. 119–125, 2017.

[4] N. Kshetri, "Blockchain's roles in strengthening cybersecurity and protecting privacy," *Telecommunications Policy*, vol. 41, no. 10, pp. 1027–1038, 2017.

[5] M. C. (Google), N. (Yahoo), P. P. (Yahoo), S. V. S. R. America), and V. K. F. Semiconductor), "Blockchain Technology: Beyond Bitcoin," *Applied Innovation Review*, no. 2, 2016.

[6] R. Sakwa, "The Future of Russian Democracy," *Government and Opposition*, vol. 46, no. 04, pp. 517–537, 2011.

[7] K. Wüst and A. Gervais, "Do you need a Blockchain?," *IACR Cryptology ePrint Archive 2017*, no. i, p. 375, 2017.

[8] B. Rodrigues, B. Stiller, E. Scheid, S. S. Kanhere, and J. Gresch, "The Proposal of a Blockchain-Based Architecture for Transparent Certificate Handling," pp. 185–196, 2019.

[9] A. Dorri, S. S. Kanhere, R. Jurdak, and P. Gauravaram, "Blockchain for IoT security and privacy: The case study of a smart home," *2017 IEEE International Conference on Pervasive Computing and Communications Workshops, PerCom Workshops 2017*, pp. 618–623, 2017.

[10] A. Hari, T. V. Lakshman, and Acm, "NET_The Internet Blockchain: A Distributed, Tamper-Resistant Transaction Framework for the Internet," *Proceedings of the 15th Acm Workshop on Hot Topics in Networks (Hotnets '16)*, pp. 204–210, 2016.

[11] N. Fotiou and G. C. Polyzos, "Decentralized name-based security for content distribution using blockchains," *Proceedings - IEEE INFOCOM*, vol. 2016-Septe, pp. 415–420, 2016.

[12] Y.-j. Chung and Y. D. Kim, "BLOCKCHAIN BASED SECURITY FOR END POINTS," 2010.

[13] M. Alharby and A. van Moorsel, "Blockchain Based Smart Contracts : A Systematic Mapping Study," in *3rd International Conference on Artificial Intelligence and Soft Computing*, pp. 125–140, 2017.

[14] B. Rodrigues, T. Bocek, A. Lareida, D. Hausheer, S. Rafati, and B. Stiller, "A Blockchain-Based Architecture for Collaborative DDoS Mitigation with Smart Contracts," vol. 10356, pp. 16–29, 2017.

[15] S. Talukder, S. Roy, and T. A. Mahmud, "A Distributed Anti-Malware Database Management System using BlockChain," *Researchgate.Net*, no. December, 2018.

[16] A. Buldas, A. Kroonmaa, and R. Laanoja, "Keyless signatures' infrastructure: How to build global distributed hash-trees," *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, vol. 8208 LNCS, pp. 313–320, 2013.

[17] B. Rodrigues, T. Bocek, and B. Stiller, "Multi-domain DDoS Mitigation Based on Blockchains," vol. 10356, pp. 185–190, 2017.

[18] X. Yue, H. Wang, D. Jin, M. Li, and W. Jiang, "Healthcare Data Gateways: Found Healthcare Intelligence on Blockchain with Novel Privacy Risk Control," *Journal of Medical Systems*, vol. 40, no. 10, p. 218, 2016.

[19] S. Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," *Journal for General Philosophy of Science*, vol. 39, no. 1, pp. 53–67, 2008.

[20] Y. Dong, W. Kim, and R. Boutaba, "Conifer: centrally-managed PKI with blockchain-rooted trust," pp. 1092–1099, 2018.

[21] D. Dalton and L. Kehoe, "Written by the Deloitte EMEA Grid Blockchain Lab with insights from Deloitte global cyber SMEs from members firms including For more information please contact," *Deloitte*, 2018.

[22] S. Shackelford and S. Myers, "Block-by-Block: Leveraging the Power of Blockchain Technology to Build Trust and Promote Cyber Peace," *Yale Journal of Law and Technology (2017 Forthcoming)*, vol. Kelley Sch, pp. 16–85, 2016.

[23] T. Bocek, B. B. Rodrigues, T. Strasser, and B. Stiller, "Blockchains Everywhere -A Use Case of Blockchains in the Pharma Supply-Chain," *IFIP/IEEE Symposium on Integrated Network and Service Management (IM)*, pp. 772–777, 2017.

[24] S. Raje, S. Vaderia, N. Wilson, and R. Panigrahi, "Decentralised firewall for malware detection," *International Conference on Advances in Computing, Communication and Control 2017, ICAC3 2017*, vol. 2018-Janua, pp. 1–5, 2018.

[25] C. Madhumohanreddy and G. Raghavendra, "Blockchain-Based Database to Ensure Data Integrity in Cloud Forensics," *International Journal of Scientific Research in Computer Science, Engineering and Information Technology © 2018 IJSRCSEIT*, vol. 4, no. 10, pp. 2456–3307, 2018.

[26] Megan Molteni, "Blockchain Could Be the Answer to Health Care's Electronic Record Woes | WIRED," 2017.

[27] A. N. Baccarini, K. N. Griggs, E. A. Howson, O. Ossipova, T. Hayajneh, and C. P. Kohlios, "Healthcare Blockchain System Using Smart Contracts for Secure Automated Remote Patient Monitoring," *Journal of Medical Systems*, vol. 42, no. 7, pp. 1–7, 2018.

[28] S. Singh and N. Singh, "Blockchain: Future of financial and cyber security," *Proceedings of the 2016 2nd International Conference on Contemporary Computing and Informatics, IC3I 2016*, pp. 463–467, 2016.

[29] A. Ekblaw, A. Azaria, J. D. Halamka, and A. Lippman, "A Case Study for Blockchain in Healthcare: "MedRec"prototype for electronic health records and medical research data," *Proceedings of IEEE Open & Big Data Conference*, vol. 13, p. 13, 2016.

[30] M. Bishop, "What is computer security?," *IEEE Security and Privacy*, vol. 1, no. 1, pp. 67–69, 2003.

[31] H. W. Kim and Y. S. Jeong, "Secure Authentication-Management human-centric Scheme for trusting personal resource information on mobile cloud computing with blockchain," *Human-centric Computing and Information Sciences*, vol. 8, no. 1, 2018.

[32] P. Zhang, J. White, D. C. Schmidt, G. Lenz, and S. T. Rosenbloom, "FHIRChain: Applying Blockchain to Securely and Scalably Share Clinical Data," *Computational and Structural Biotechnology Journal*, vol. 16, pp. 267–278, 2018.

[33] Y. Lu, "Blockchain and the related issues: a review of current research topics," *Journal of Management Analytics*, vol. 5, no. 4, pp. 231–255, 2018.

[34] S. Mannhart, B. Rodrigues, E. Scheid, S. S. Kanhere, and B. Stiller, "Toward Mitigation-As-A-Service in cooperative network defenses," *Proceedings - IEEE 16th International Conference on Dependable, Autonomic and Secure Computing, IEEE 16th International Conference on Pervasive Intelligence and Computing, IEEE 4th International Conference on Big Data Intelligence and Computing and IEEE 3*, pp. 362–367, 2018.

[35] D. Puthal, N. Malik, S. P. Mohanty, E. Kougianos, and C. Yang, "The Blockchain as a Decentralized Security Framework [Future Directions]," *IEEE Consumer Electronics Magazine*, vol. 7, no. 2, pp. 18–21, 2018.

[36] M. Mylrea and S. N. G. Gourisetti, "Blockchain for smart grid resilience: Exchanging distributed energy at speed, scale and security," in *Proceedings - 2017 Resilience Week, RWS 2017*, pp. 18–23, 2017.

[37] K. Biswas and V. Muthukkumarasamy, "Securing Smart Cities Using Blockchain Technology Kamanashis," in *14th IEEE International Conference on Smart City*, 2016.

[38] Z. Wang, J. Lin, Q. Cai, Q. Wang, J. Jing, and D. Zha, "Blockchain-based Certificate Transparency and Revocation Transparency," *Financial Cryptography and Data Security*, no. 2014, 2018.

[39] J. L. Shawn Wilkinson, "Metadisk: Blockchain-Based Decentralized File Storage Application," *Liquid Crystals*, vol. 14, no. 2, pp. 573–580, 1993.

[40] C. Esposito, A. De Santis, G. Tortora, H. Chang, and K. K. R. Choo, "Blockchain: A Panacea for Healthcare Cloud-Based Data Security and Privacy?," *IEEE Cloud Computing*, vol. 5, no. 1, pp. 31–37, 2018.

[41] C. Jamthagen and M. Hell, "Blockchain-Based Publishing Layer for the Keyless Signing Infrastructure," *Proceedings - 13th IEEE International Conference on Ubiquitous Intelligence and Computing, 13th IEEE International Conference on Advanced and Trusted Computing, 16th IEEE International Conference on Scalable Computing and Communications, IEEE Internationa*, pp. 374–381, 2017.

[42] X. Wang, K. Li, H. Li, Y. Li, and Z. Liang, "ConsortiumDNS: A Distributed Domain Name Service Based on Consortium Chain," *Proceedings - 2017 IEEE 19th Intl Conference on High Performance Computing and Communications, HPCC 2017, 2017 IEEE 15th Intl Conference on Smart City, SmartCity 2017 and 2017 IEEE 3rd Intl Conference on Data Science and Systems, DSS 2017*, vol. 2018-Janua, pp. 617–620, 2018.

[43] Z. Wang, J. Lin, Q. Cai, Q. Wang, J. Jing, and D. Zha, "Blockchain-based Certificate Transparency and Revocation Transparency," *Financial Cryptography and Data Security*, no. 2014, 2018.

[44] M. A. Khan and K. Salah, "IoT security: Review, blockchain solutions, and open challenges," *Future Generation Computer Systems*, vol. 82, pp. 395–411, 2018.

[45] B. Rivas-Murias, J. Rivas, and M. Señarís-Rodríguez, "Synthesis, characterization and transport properties of Pr $_{0.50}$Ln $_{0.50}$BaCo $_2$O $_{5+\delta}$ (Ln: Pr, Nd, Sm, Eu, Gd, Tb and Dy)," *Journal of Alloys and Compounds*, vol. 516, pp. 5–6, 2012.

[46] N. Kshetri, "Can Blockchain strengthen the internet of things,"

[47] S. Rowan, M. Clear, M. Gerla, M. Huggard, and C. M. Goldrick, "Securing Vehicle to Vehicle Communications using Blockchain through Visible Light and Acoustic Side-Channels," 2017.

[48] F. Dai, Y. Shi, N. Meng, L. Wei, and Z. Ye, "From Bitcoin to cybersecurity: A comparative study of blockchain application and security issues," in *4th International Conference on Systems and Informatics (ICSAI 2017)*, 2017.

[49] X. Duan, Z. Yan, G. Geng, and B. Yan, "DNSLedger: Decentralized and distributed name resolution for ubiquitous IoT," *2018 IEEE International Conference on Consumer Electronics, ICCE 2018*, vol. 2018-Janua, pp. 1–3, 2018.

[50] C. Noyes, "BitAV: Fast Anti-Malware by Distributed Blockchain Consensus and Feedforward Scanning," pp. 1–10, 2016.

[51] G. Liang, S. R. Weller, F. Luo, J. Zhao, and Z. Y. Dong, "Distributed Blockchain-Based Data Protection Framework for Modern Power Systems against Cyber Attacks," *IEEE Transactions on Smart Grid*, vol. 3053, no. c, pp. 1–12, 2018.

[52] Y. Dong and W. Kim, "Bitforest : a portable and ef fi cient blockchain-based naming system," *2018 14th International Conference on Network and Service Management (CNSM)*, no. Cnsm, pp. 1–9, 2018.

[53] O. Jacobovitz, "Blockchain for Identity Management," *Technical Report Ben-Gurion University*, no. December, pp. 1–19, 2016.

[54] N. Bozic, G. Pujolle, and S. Secci, "A tutorial on blockchain and applications to secure network control-planes," *2016 3rd Smart Cloud Networks and Systems, SCNS 2016*, pp. 1–8, 2017.

[55] T. Lepoint, G. Ciocarlie, and K. Eldefrawy, "BlockCISâA Blockchain-Based Cyber Insurance System," *2018 IEEE International Conference on Cloud Engineering (IC2E)*, pp. 378–384, 2018.

[56] M. Banerjee, J. Lee, and K. K. R. Choo, "A blockchain future for internet of things security: a position paper," *Digital Communications and Networks*, vol. 4, no. 3, pp. 149–160, 2018.

[57] A. Ben Ayed, "A Conceptual Secure Blockchain Based Electronic Voting System," *International Journal of Network Security & Its Applications*, vol. 9, no. 3, pp. 01–09, 2017.

[58] M. Ali, J. Nelson, R. Shea, and M. J. Freedman, "Blockstack : A Global Naming and Storage System Secured by Blockchains," *USENIX Annual Technical Conference*, pp. 181–194, 2016.

[59] X. Duan, Z. Yan, G. Geng, and B. Yan, "DNSLedger: Decentralized and distributed name resolution for ubiquitous IoT," *2018 IEEE International Conference on Consumer Electronics, ICCE 2018*, vol. 2018-Janua, pp. 1–3, 2018.

[60] C. Yang, X. Chen, and Y. Xiang, "Blockchain-based publicly verifiable data deletion scheme for cloud storage," *Journal of Network and Computer Applications*, vol. 103, no. August 2017, pp. 185–193, 2018.

[61] P. Zhang, D. C. Schmidt, and J. White, "Blockchain Use Cases in Healthcare," 2017.

[62] S. Moosavi and J. Clark, "Ghazal : toward truly authoritative web certificates using Ethereum," pp. 1–15, 1993.

[63] O. Jacobovitz, "Blockchain for Identity Management," *Technical Report Ben-Gurion University*, no. December, pp. 1–19, 2016.

[64] S. Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," 2009.

[65] J. Li, J. Wu, and L. Chen, "Block-secure: Blockchain based scheme for secure P2P cloud storage," *Information Sciences*, vol. 465, pp. 219–231, 2018.

[66] S. Prianga, R. Sagana, and E. Sharon, "Evolutionary Survey on Data Security in Cloud Computing Using Blockchain," *2018 IEEE International Conference on System, Computation, Automation and Networking, ICSCA 2018*, pp. 1–6, 2018.

[67] D. Puthal, N. Malik, S. P. Mohanty, E. Kougianos, and C. Yang, "The Blockchain as a Decentralized Security Framework [Future Directions]," *IEEE Consumer Electronics Magazine*, vol. 7, no. 2, pp. 18–21, 2018.

[68] A. Hari, T. V. Lakshman, and Acm, "NET_The Internet Blockchain: A Distributed, Tamper-Resistant Transaction Framework for the Internet," *Proceedings of the 15th Acm Workshop on Hot Topics in Networks (Hotnets '16)*, pp. 204–210, 2016.

[69] B. Benshoof, A. Rosen, A. G. Bourgeois, and R. W. Harrison, "Distributed decentralized domain name service," *Proceedings - 2016 IEEE 30th International Parallel and Distributed Processing Symposium, IPDPS 2016*, pp. 1279–1287, 2016.

[70] N. Kshetri, "Blockchain's roles in strengthening cybersecurity and protecting privacy," *Telecommunications Policy*, vol. 41, no. 10, pp. 1027–1038, 2017.

[71] M. C. (Google), N. (Yahoo), P. P. (Yahoo), S. V. S. R. America), and V. K. F. Semiconductor), "Blockchain Technology: Beyond Bitcoin," *Applied Innovation Review*, no. 2, 2016.

[72] G. Zyskind, O. Nathan, and A. S. Pentland, "Decentralizing privacy: Using blockchain to protect personal data," *Proceedings - 2015 IEEE Security and Privacy Workshops, SPW 2015*, pp. 180–184, 2015.

[73] J. H. Lee, "BIDaaS: Blockchain Based ID As a Service," *IEEE Access*, vol. 6, pp. 2274–2278, 2017.

[74] S. Cao, G. Zhang, P. Liu, X. Zhang, and F. Neri, "Cloud-assisted secure eHealth systems for tamper-proofing EHR via blockchain," *Information Sciences*, vol. 485, pp. 427–440, 2019.