Sebastian Loeschcke

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Computer Science
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Profile

I am a curious, detail-oriented, energetic computer science student skilled in problem-solving, with excellent observational and communication skills and a strong foundation in math. I thrive in collaborative working environments, where people combine their different strengths and challenge each other's way of thinking. I have a great passion for deep learning, computer vision, and data visualization with a strong theoretical background from coursework and research projects at Aarhus University and hands-on experience from my data science position at Systematic.

Education

2021 – Now **Master**, *Computer Science, Aarhus University and Copenhagen University*.
Grade avg. 12/12

2018 – 2021 **Bachelor**, *Computer Science, Aarhus University*.
Grade avg. 11.1/12

2013 – 2016 **High School**, *Aarhus Katedralskole*.
Grade avg. 11.1/12

Work Experience

May 2021 – Dec 2022 **Junior Data Scientist**, SYSTEMATIC.
- Applied machine learning and data science methods to improve Systematic's software products.
- Developed a method for automating time consuming manual tasks for E-Nettet A/S.
- Implemented various deep learning models, e.g. an LSTM autoencoder for anomaly detection and a few-shots learning Siamese neural network for recognizing handwritten symbols.

March – June 2020 & 2021 **Teaching Assistant - Pre-Talent Track CS Department**, AARHUS UNIVERSITY.
- Organized and guided activities for students, including presentations based on my research.
- Assessed student assignments.

Jan 2014 – June 2016 **High School Tutor and Study Café Coordinator**, AARHUS KATEDRALSKOLE.
- Planned time schedules for all tutors.
- Provided academic support to students in Math, Chemistry, Physics, Social Studies, English, and German.

Research Experience

Dec 2021 – Nov 2022 **Text-Driven Stylization of Video Objects**, *Prof. Serge Belongie, Copenhagen University, Prof. Ira Assent, Aarhus University, and postdoc Sagie Benaim, Copenhagen University*.
- A method for stylizing video objects in an intuitive and semantic manner following a user-specified text prompt [1].
- Appeared in ECCV Workshop on AI for Creative Video Editing and Understanding, Tel-Aviv 2022.

Sep 2021 – Feb 2022 **Pattern-based Discovery of Deterioration Processes in Plant-based Food Proteins**, *Assoc. Prof. Hans-Jörg Schulz and Asst. Prof. Søren Drud-Heydary Nielsen, Aarhus University*.
- Created a visualization tool that supports food scientists in exploratory data analysis of mass spectrometry data from protein samples.
- I should have presented the tool at the Centre for Innovative Food Research Conference, Aarhus University, February 1st, 2021 (Postponed due to Covid-19).

Feb 2021 – June 2022 **Discovering Top-k Reliable Subgraphs in Uncertain Graphs**, *Asst. Prof. Cigdem Aslay and Assoc. Prof. Panagiotis Karras, Aarhus University*.
- Devised sampling schemes using VC-dimension theory to provide ϵ-approximations for the #P-complete problem of discovering the k most reliable subgraphs in uncertain graphs.

Sep 2020 – Feb 2021 **Cancer Type Prediction based on Gene Expression in Blood Samples using Convolutional Neural Network Models**, *Assoc. Prof. Søren Besenbacher, Asst. Prof. Lasse Maretty Sørensen and director of the Bioinformatics Research Center Christian Pedersen, Aarhus University*.

- Implemented and designed Convolutional Neural Network for cancer prediction in blood samples.
- More accurate models were published while the project was still ongoing.

Sep 2019 – June 2020 **Progressive Parameter Space Visualization for Task-Driven SAX Configuration**, *Assoc. Prof. Hans-Jörg Schulz, Aarhus University*.

- Investigated how to find the right trade-off between data reduction and remaining utility of the data using Progressive Visual Analytics.
- Published and presented a paper at the International EuroVis Workshop on Visual Analytics (EuroVA)[2]
- The Computer Science department at Aarhus University published a news article about my achievements.

Publications

Loeschcke, Sebastian, S. Belongie, and S. Benaim, "Text-Driven Stylization of Video Objects," ECCV 2022 Workshop on AI for Creative Video Editing and Understanding, https://arxiv.org/abs/2206.12396.

Loeschcke, Sebastian, M. Hogräfer, and H.-J. Schulz, "Progressive Parameter Space Visualization for Task-Driven SAX Configuration," in *EuroVis Workshop on Visual Analytics (EuroVA)* (C. Turkay and K. Vrotsou, eds.), The Eurographics Association, 2020.

Achievements

Sep 2022 **Recipient of Queen Margrethe II's travel grant**.

- News article from Aarhus University

2018 – 2021 **Bachelor degree with distinction**.

- During my bachelor's degree I have done 30 ECTS extracurricular activities by being enrolled in the Talent Track program at the Computer Science Department, Aarhus University.
- The Talent Track offers bachelor students the opportunity to come in close contact with current research topics being pursued at the Computer Science department.

May 2020 **Published and presented *two* papers at international conferences**.

- I published my first peer-reviewed paper in my second year at uni and presented my research at the International EuroVis Workshop on Visual Analytics (EuroVA)[2].

Skills

Languages	Python, Java, C/C++, Go, Scala, OCaml, SQL
Frameworks	PyTorch, Tensorflow, Keras
WebD	HTML/CSS, JavaScript
Utilities	Anaconda, Git
Communication	Danish, English, German

References

Hans-Jörg Schulz,
Assoc. Prof.,
Aarhus University,
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Christian Storm Pedersen,
Director and Assoc. Prof.,
Aarhus University,
Bioinformatics Research Center,
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Ira Assent,
Prof.,
Aarhus University,
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Sagie Benaim,
Postdoc,
Copenhagen University,
Computer Science Department,
sagiebenaim@gmail.com.

Curriculum incl. all examination attempts

Loeschcke, Sebastian Bugge
Strandboulevarden 62 A,2
2100 København Ø

CPR number 010896-[redacted]
Study ID num. 201804446

AARHUS UNIVERSITET

The elements in this transcript are stated in ECTS points. For further explanation of terms see below.

		Prescr/min	Lacking	Term	Marked	Result	Passed
RAM	Enrolled from 01.09.2021 by open degree frame ordinary, effectual from 01.09.2005 for Master's Degree Programme, in accordance with Ministerial Order no. 20 of 09.01.2020	120	70				50
UDD	Master's Degree Programme	120	70				50
UDD	Central Subject in Computer Science	60	10				50
STU	Academic regulation for Central Subject in Computer Science, effectual from 01.09.2017	90	40				50
GRP	Elective Courses	60	10				50
EKA	Cluster Analysis	10	0	S22	30.06.2022	12(A)	10
EKA	Computational Learning Theory	10	0	W21-22	18.01.2022	12(A)	10
EKA	Data Mining	10	0	S22	16.06.2022	12(A)	10
EKA	Data Visualization	10	0	W21-22	28.01.2022	12(A)	10
EKA	Deep Learning for Visual Recognition	10	0	W21-22	14.01.2022	12(A)	10
EKA	Project Work in Computer Science	10	10	S22	15.06.2022	Deserted	0
GRP	Master's Thesis	30	30				0
UDD	NS NAT KAND VF60 in Science	60	60				0
STU	Academic regulation for NS NAT KAND VF60 in Science, effectual from 05.09.2017	0	0				0

Total sum passed by credit transfer	0
of this with evaluation date prior to matriculation date	0
Total assessed with external examiner	20
Total assessed with internal examiner	30
Total assessed with no examiner	0
Total assessed with no registered examiner	0
In all assessed with exam language English	50
Total assessed according to the Danish 7-point scale (grading scale)	50
Total assessed with pass-fail, approved-not approved	0

Other activities:

EKA Bachelor's Project in Computer	15	S21	10.06.2021	12(A)

Curriculum incl. all examination attempts

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	Prescr/min	Lacking	Term	Marked	Result	Passed
EKA Calculus Beta	10		W18-19	08.02.2019	10(B)	
EKA Compilation	10		W20-21	16.02.2021	12(A)	
EKA Computability and Logic	10		S20	15.06.2020	12(A)	
EKA Computer Architecture, Network	10		S20	22.07.2020	Pass	
EKA Distributed Systems and Securi	10		W20-21	26.01.2021	12(A)	
EKA Experimental System Developmen	10		S20	10.06.2020	Pass	
EKA Foundations of Algorithms and	10		W18-19	29.01.2019	12(A)	
EKA Human-Computer Interaction	10		W19-20	07.02.2020	12(A)	
EKA Implementation and Application	5		S19	10.07.2019	12(A)	
EKA Introduction to Databases	5		S19	23.04.2019	12(A)	
EKA Introduction to Probability Th	10		W19-20	23.01.2020	7(C)	
EKA Introduction to Programming	10		W18-19	24.01.2019	12(A)	
EKA Linear Algebra	10		S19	02.07.2019	10(B)	
EKA Machine Learning	10		W20-21	08.01.2021	12(A)	
EKA Optimization	10		S21	23.06.2021	12(A)	
EKA Philosophy and Ethics of Compu	5		S21	20.04.2021	10(B)	
EKA Programming Languages	10		S19	04.07.2019	10(B)	
EKA Software Engineering and Archi	10		W19-20	06.01.2020	10(B)	

Explanation of columns and abbreviations in the transcript:
In the first column the type of study element is shown by way of the following abbreviations:
RAM study framework
UDD study programme
STU curriculum
GRP group of study activities
EKA examination activity
UVA teaching activity
In the column "Prescr./min" the following is shown: for activities the registered weight, for the study programme the registered prescribed study period, and for groups of study acitivities the weight of compulsory activities or the weight which is the minimum for the passing of the group of study activities.
In the column "Lacking" the difference between "prescribed/min" and the sum of the weight of the passed activities is shown for the incompleted activities, groups and study programmes.
In the column "Term" the term to which a result belongs is shown. "S04" means summer examiniation term of 2004, and "W04-05" means winter examination term of 2004-05. "r" after a term states that the result is achieved through re-examination.
In the column "Sum passed" the weight of the passed activities are shown. For groups of study activities and study programmes, the sum of the weight of the passed activities are shown.

AARHUS UNIVERSITY

[redacted]
201804446

Graduation with distinction

Pursuant to the Ministerial Order no. 597 of March 8 2015 on talent initiatives at the higher education degree programmes, additional educational activities are offered to support and strengthen the efforts for particularly talented students at the university.

The student has through the Challenge/Talent Track programme passed: **30 ECTS**

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has obtained the following results:

	7-point scale	ECTS scale	Passed
Selected Topics from Cryptography; Hacking; Data and Visualization; Logic Programming 5 ECTS			**Passed**
Selected Topics from Algorithms; Cryptography; Logic and Semantics; Human-Computer Interaction; Ubiquitous Computing 5 ECTS			**Passed**
Project Work with Topics from Ubiquitous Computing and Interaction 5 ECTS			**Passed**
Project Work with Topics from Bioinformatics 5 ECTS			**Passed**
Project Work with Topics from Data-Intensive Systems 10 ECTS			**Passed**

The validity of this document is confirmed

Aarhus, 6 July 2021

Tanja Kragbæk

Tanja Kragbæk Vilhelmsen
Administrative Officer

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