

Dennis Aumiller

PHD STUDENT · INFORMATION RETRIEVAL

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Education

Heidelberg University

Heidelberg, DE

PHD IN COMPUTER SCIENCE

06/2019 – Present

- Supervised by Prof. Dr. Michael Gertz
- Project topic focusing on summarization of legal articles

Heidelberg University

Heidelberg, DE

M.SC. IN APPLIED COMPUTER SCIENCE, GERMAN GPA: 1.0 (EQUIV. OF 4.0 GPA; WITH DISTINCTION)

08/2017 – 05/2019

- Minor in Computational Linguistics
- Thesis Project: “Implementation of a Relational Document Hypergraph for Information Retrieval“, supervised by Prof. Dr. Michael Gertz, grade: 1.0 (A+)

University of Toronto

Toronto, CA

EXCHANGE YEAR, COMPUTER SCIENCE PROGRAM, GPA: 3.95

09/2017 – 04/2018

- Course selection focused on Machine Learning and Game Theory
- Research Project on Algorithmic Game Theory supervised by Prof. Dr. Nisarg Shah, grade: A

Heidelberg University

Heidelberg, DE

B.SC. IN APPLIED COMPUTER SCIENCE, GERMAN GPA: 1.4 (EQUIV. OF 3.6 GPA)

10/2013 – 08/2017

- Minor in Computational Linguistics
- Thesis Project: “Mining Relationship Networks from University Websites“, supervised by Prof. Dr. Michael Gertz and Andreas Spitz, grade: 1.0 (A+)

Experience

PROFESSIONAL

SAP SE

Walldorf, DE

SOFTWARE ENGINEERING INTERN “PRODUCTS & INNOVATIONS“

06/2018 – 09/2018

- Responsible for optimizing Machine Learning operators for cloud-distributed frameworks by analyzing underlying algorithms
- Achieved 100x speedup over naive implementations with approximate solutions and improved configuration for deployments
- Extensively evaluated different implementations across a wide tool stack
- Technologies: Docker, Kubernetes, GCP, Python, Scala, Apache Spark

Automation Laboratory, Heidelberg University

Mannheim, DE

STUDENT ASSISTANT

02/2015 – 03/2016

- Updated website to conform with corporate identity guidelines, and implemented a BiBTeX browser extension for Joomla!
- <https://proaut.ziti.uni-heidelberg.de>
- Technologies: PHP, HTML, CSS, Joomla!

Tut-All Software GmbH

Karlsruhe, DE

PART-TIME SOFTWARE ENGINEER

07/2014 – 01/2015

- Ported native software from Windows to Unix-based systems, involving system-level hooks on the X Window System
- Assisted with training of SVM-based OCR system for screen capturing to guide users in live tutorial sessions
- Technologies: Java, Unix Kernel, X11

REFLEXA-Werke Albrecht GmbH

Rettenbach, DE

PART-TIME SYSTEM ADMINISTRATOR

03/2013 – 03/2014

- Maintained a production ERP environment in a mid-sized company of more than 300 employees
- Updated and maintained product catalogue and production workflow for around 50 products
- Valid combinations and input mask restrictions were implemented programmatically in a BASIC dialect
- Planned and executed several month-long projects under self-supervision
- Technologies: BASIC, IBM AS400, Project Management

TEACHING

Institute of Computer Science, Heidelberg University

Heidelberg, DE

TEACHING ASSISTANT & LECTURE ASSISTANT & PROJECT SUPERVISOR

04/2016 – Present

- Student Project Supervisor, Database Systems Research Group (Summer 2019, Winter 2019)
- Teaching Assistant: “Databases” (Summer 2016, Summer 2017), “Complex Network Analysis” (Winter 2018)
- Lecture Assistant: “Computer Graphics” (Winter 2016), “Databases” (Summer 2019)
- Gained extensive public speaking experience by preparing and holding weekly tutorial sessions for students
- Graded weekly assignments and final exams
- Created assignments and final exams for lecture assistant positions
- Established regular code reviews and more detailed git usage for student projects
- Technologies: Python, igraph, SQL, PostgreSQL, C++, OpenGL 4.X

Heidelberg University

Heidelberg, DE

TEACHER FOR FRESHMAN INTRODUCTION COURSE “COMPUTER SCIENCE“

10/2016

- Introduced various CS concepts (algorithms, data structures) to new students
- Preparation and execution of week-long intensive course

Programming Side Projects

Codefy

Heidelberg, DE

INTELLIGENT OFFLINE SEARCH FOR THE LEGAL INDUSTRY

09/2019 – Present

- Participated in the conception and responsible for implementation of a product MVP for intuitive offline search
- Learned about lean product development and followed a SCRUM-like meeting schedule
- Worked with different search stacks to implement a personalizable ranking function, including hierarchical search
- Technologies: Python, Apache Solr, Whoosh, PostgreSQL

Stackoverflow

Heidelberg, DE

[HTTPS://STACKOVERFLOW.COM/USERS/3607203/DENNLINGER](https://stackoverflow.com/users/3607203/dennlinger)

06/2018 – Present

- Top 5% of active users every year since 2018
- Actively answering and moderating questions on various tags related to Python and Machine Learning
- Bronze batch in “Python“, top 40 all-time answerer for “PyTorch“

Metaplx

Toronto, CA

AUTOMATED SEQUENCE LABELING FOR BIOMEDICAL TEXTS

02/2018 – 01/2020

- Created product MVP to assist with the automated extraction of relevant patient data from medical texts
- Managed ML part of the project, including design and implementation of a ML pipeline in PyTorch
- Built upon several state-of-the-art NLP architectures, including Seq2Seq and BERT variants
- Learned about annotation guidelines and importance of data preprocessing. Curated a dataset of approx. 70k samples
- Technologies: Python, PyTorch, React

Volunteer Activity

Comeniushaus Dormitory

Heidelberg, DE

SOCIAL TEAM MANAGER

10/2018 – Present

- Responsible for organizing various student-run events
- Co-managing a team of six voluntary students

Youth Orchestra “Jugendstreicherorchester inTONation e.V.“

Günzburg, DE

PRESIDENT

04/2014 – 11/2018

- Gained experience in organizing medium-sized events (ca. 200 attendees) for yearly concerts
- Learned about Management tasks by planning and discussing annual budgets

UAIG (Undergraduate Artificial Intelligence Group)

Toronto, CA

EXECUTIVE MEMEBER

01/2018 – 05/2018

- Organized a speaker series about AI targeted at first-/second-year students
- Participated in conception and sponsor acquisition for a new AI student conference (StartAI)

- Hosted several offline events, including organization of location, catering and internet connection
- Partnered with game developer to host viewing party for eSports events

Honors & Awards

HACKATHONS

- 05/2019 **Best Use of Outside Data**, Datafest Germany 2019, “All your players are belong to us” Mannheim, DE
- 04/2019 **1st Place**, Legal Tech Hackathon Universität Heidelberg, “AGBSpider” Heidelberg, DE
- 03/2018 **1st Place**, BCB BioHacks 2018, “Human Body Atlas” Toronto, CA
- 02/2018 **1st Place**, IEEE Ryerson Big Data Hackathon, see *Kaggle* Toronto, CA

SCHOLARSHIPS

- 10/2018 **Germany Scholarship**, Sponsored by Sovanta AG, For 1 year Heidelberg, DE
- 09/2017 **Baden-Württemberg Scholarship**, For 5 months Toronto, CA
- 10/2014 **Germany Scholarship**, Sponsored by SAP SE, For 2 years Heidelberg, DE

Publications

A Versatile Hypergraph Model for Document Collections

SSDBM'20

A. SPITZ, **D. AUMILLER**, S. BÁLINT, M. GERTZ (UNDER REVIEW)

07/2020

- Implemented and evaluated theoretical model, see **code repository**
- Contributed corresponding parts in the paper

Time-centric Exploration of Court Documents

Text2Story@ECIR'20

P. HAUSNER, **D. AUMILLER**, M. GERTZ

04/2020

- Co-Supervision of underlying thesis project and help with manuscript

DNA accessibility of Chromosomes Quantified by Automated Image Analysis

Scientific Reports

M. WÜRTZ, **D. AUMILLER** ET AL.

09/2019

- Interdisciplinary research project with the German Cancer Research Center (DKFZ)
- Maintainer of the **code repository** and responsible for algorithmic descriptions

Competencies

PROGRAMMING LANGUAGES

- Python
- SQL
- Matlab
- JavaScript
- C++

TOOLS & FRAMEWORKS

- PyTorch
- git
- PostgreSQL
- Apache Spark
- Docker

LANGUAGES

- English (Fluent), TOEFL iBT 115/120
- German (Native)