Martin Thoma

Curriculum Vitæ

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Work Experience

2014

Researcher
developing neural nets for on-line handwriting recognition

My bachelors thesis includes getting on-line data of handwritten mathematical symbols, preprocessing, extracting features and using neural nets to classify those symbols. The data was collected with write-math.com. All results are available there, too.

2013

Programmer
improving KIT lecture translator

I've implemented and integrated an unsupervised acoustic model training framework into KIT lecture translator system for automatic model adaption.

2013

Scientific lector
LaTeX, German and computer science

I've corrected a script for computer engineering.

2012

Tutor for programming
teaching students programming at university

I taught people about 30 students how to program in Java. Coding conventions and basic OOP was part of the course. All of my German presentations are online. → presentations

2011

Freelancer at KTC
programming for a consulting company

At KTC, I gained first experiences with buisness-logic and a big, but algorithmically not challenging project. To be honest, I only fixed some Java bugs.

2011

Student research assistant at Institute of Toxicology and Genetics, KIT
participating in a university research project

In summer 2011 I worked for over a month for a research project at KIT. I have written bash scripts for file conversions, fixed some bugs and re-written a slow Mathematica script in a much faster Python version. But it quickly turned out that this project had a lot of C++ source which was rarely commented or documented. I realized, that I wouldn't have time for this project after beginning my studies at university.

Education

from 2014	**Master of Science** Computer Science *Karlsruhe Institute of Technology*
2011 – 2014	**Bachelor of Science** Computer Science *Karlsruhe Institute of Technology* Thesis about On-line Recognition of Handwritten Mathematical Symbols (Link)
2004 – 2010	**Abitur** Intensive course physics and mathematics *Paul-Klee-Gymnasium Gersthofen*

Awards

2010	**Winner** *Federal Competition for Computer Science*
2009	**2nd prize - regional competition** *Youth Research Competition*
2008	**1st prize** *data analysis competition at University of Augsburg*
2007	**Prize for science and research** *FOCUS pupils competition*

Computer Skills

Basic Knowledge	JavaScript Linux, SQL, PHP
Intermediate Knowledge	LaTeX, Java, HTML
Good Knowledge	Python

Language Skills

German	mother tongue
English	Cambridge Certificate – C1
French	DELF A2

Work Experience

since 2011

Freelance Work

building an online service

I have started to work as a freelancer at the beginning of 2011. I have developed an online-service which helped schools to coordinate their dates. I have sold this online service to two schools in bavaria and three other schools were interested. Unfortunately, the ministry of education of Bavaria released an application with similar functionality in 2012. This was the reason why I decided to shut down my service.

since 2006

HackIts, Puzzles and Challenges

ProjectEuler, bright-shadows.net and many more

I really love solving logical, algorithmical or math puzzles and participated in competitions. I started to solve puzzles in 2006 and I still like them. This was the reason why I participated in a practical curse at KIT for preparation for ICPC. It was fun, but I found out that many people are much faster in producing C++ code that passed the tests than I am. However, as I've been very successfull at the Federal Competition for Computer Science ("Bundeswettbewerb Informatik") it seems as if I'm better in problem solving if I get more time to think about it.

Future plans and motivation

I watched a video about Google Driverless Car in June 2013 and was totally amazed. I've started two online courses on Udacity to learn more about this topic. Currently, I try to find a good way to compute the minimum distance of a point to a cubic spline which is necessary to apply the PID algorithm for steering control.

I'm currently employed as a research assistant at Institute for Anthropomatics (KIT). My task is to implement some changes that were proposed in a thesis to the KIT lecture translation system. The work helps me to understand how speech recognition works. I will definitely also make a masters degree in computer science. A topic about which I would like to learn more are self driving cars. But I think there are no courses in Karlsruhe about this.

I also would like to spend about half a year abroad, preferably in an English speaking country which is not in Europe.

Projects

11/2013 **Book about Geometry and Topology**
writing an introduction to geometry and topology → read more

11/2013 **Minimum distance paper**
research to compute the minimum distance to a cubic spline → read more

06/2013 **Interpolation**
creating an interactive HTML5/JS-example for interpolation → read more

02/2013 **Line segment intersection**
creating a simple check for line segment intersection → read more

06/2012 **Matrix multiplication**
examining algorithms and libraries for matrix multiplication → read more

09/2011 **Blogging on martin-thoma.com**
about Algorithms, the Web, University, ...

06/2011 **Community Chess**
This is a platform for programmers. They can use the API to create A.I.s that play chess agains each other. → read more

Online Courses

09/2013	**Artificial Intelligence for Robotics** *finished 10/2013*	Udacity
06/2013	**Introduction to Artificial Intelligence** *finished 08/2013*	Udacity
05/2012	**Algorithms I** *finished 07/2012*	Stanford
06/2010	**Introduction to Computer Science and Programming** *finished 09/2010*	MIT