

GAŠPER AŽMAN

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EDUCATION

MSc Faculty of Mathematics and Physics, University of Ljubljana. Mathematics, September 2013, with highest grade.

BSc Faculty of Mathematics and Physics, University of Ljubljana. Mathematics, October 2010 **High school Gimnazija Vič, Ljubljana** With honors, 2007

PUBLICATIONS

2015: A Proper property (<http://slides.com/gasperazman/cppcon2015-a-proper-property#/>) Lightning talk at CppCon: A love letter to doing properties in C++.

2015: C++ Today: The Beast is Back (with John Kalb) An expose of how C++ got where it is today.

WORK

July 2013 present Software Development Engineer, A9.com, search technologies – search infrastructure (Started in Dublin, Ireland, now in Palo Alto, CA). Focus on query-side scatter-gather high-availability high-performance low-latency architecture and its implementation. Also developed analytics and statistics back- and frontend that gathers data from hundreds of terabytes of log files efficiently. Designed and wrote plugin interface for the ranking subsystem. Internal lecturer on advanced C++; intern and newhire mentor, internally certified behavioral interviewer. (C++, Python, gnu make, javascript, html5, Amazon S3, perl)

July 2012 July 2013 Researcher at UC Berkeley, computer science division, under Dr. Dawn Song, working on a graph-based approach to OCR with applications in captcha breaking, to handle overlapping characters. C++ implementation and mathematical formulation of both the problem and the solution. (C++, Python, Matlab, svg)

May 2012 Developed an example Java webservice client for a webbackend of a phone payment system.

October 2009 – June 2012 Programmer at the AI Lab of JSI, Ljubljana: working on computer vision, specifically 3D reconstruction and equipment calibration. (C++)

August 2008 – June 2009 Web programming for Nevron, d.o.o. Web frontend in PHP, HTML and JS for a videostreaming server with a SOAP interface. I was the lead developer for the component.

2007 – 2008 Hermes Softlab: member of a team that designed and implemented a performance-critical testing suite for the backend database, with portability across Linux, HPUX and Microsoft Windows.

TEACHING EXPERIENCE

Lightning talk “A proper property” at CppCon 2015.

Lecturer on “What's new in c++14” at Silicon Valley CodeCamp 2015, whole-day workshop.

Internal training in C++, good programming practices, and foundations of mathematics for the Amazon team in Dublin, Palo Alto, and Tokyo. I have my own lecture series on advanced C++.

Led Amazon’s CoderDojo in Dublin (2014) Teaching primary school children in first programming steps.

Spring semester of the 2012/13 school year I was supervising an undergraduate student who was helping the

OCR project with low-level library work in C++.

October 2008 – February 2011 Math department, University of Ljubljana: Introductory programming and basic computing courses. Lecturer, TA. Also responsible for the preparation and grading of tests.

September 2006 – June 2011 Lecturer at the “Gimnazija Vič” high school: Beginner to intermediate programming course, head lecturer. (Python, C++, Java, PHP with HTML, CSS and JavaScript)

October 2010 – June 2011 Supervision of high school science projects: Projects placed 1st and 3rd in the national competition, field of Informatics and Technology.

SCIENCE PROJECTS

2011 – 2013 MSc thesis “An Overview of Methods for Sybil Defense” under the supervision of Dr. Andrej Bauer: I investigated several proposed methods for sybil defense (defense against the influence of many smurf accounts) utilizing an unlabeled social graph. The work contains a description of algorithms and proofs of running time and correctness, some of which are nontrivial corrections of published incorrect proofs.

2010 – 2011 Large Graph Drawing: Course project under supervision of Dr. Andrej Bauer: I implemented advanced graph drawing algorithms based on linear algebra methods that can handle graphs with hundreds of thousands of vertices (two orders of magnitude larger than typical spring embedders). The implementation is written in C++ and uses OpenGL for 3D presentation, the BGL for graph representation and Boost.ublas for numerical computation.

2009 – 2010 BSc thesis “ π calculus” under the supervision of Dr. Andrej Bauer. An introduction to π calculus as a formalism for parallel computation, with implementation of a π calculus simulator and deadlock detector.

2008 – Present CxxTest development: I am a developer of the open source testing framework CxxTest (<http://cxxtest.tigris.org/>) under the alias “atom”.

2007 Created a News Display Panel application for my former high school. It ran in the lobby for a few years. Written in PHP and JavaScript (related: json).

2003 – 2007 System administration, head webserver admin, and website development for my high school. **2007**

Hermes Softlab summer school: Microcontroller setup for controlling access to a safe. (Language: C) **2006**

Hermes Softlab summer school: Wrote a Wiki server along with other participants of the summer school (Language: C++)

2005 ZOTKS Summer school: implementation of a multiplayer networked game, Minesweeper (Java)

ACHIEVEMENTS

2003 – 2013 Recipient of the national Zoiss scholarship for the gifted

2007 (age 19) Team 3rd place in Slovenian University Programming Championship (SUPP) **2007** (age 19) 1st place in the National competition for Philosophy Essay Writing

2006 (age 18) Gold plaque in the National competition in English (top 10)

2007 (age 19) Team 2nd place in the nationwide Improvisational theatre sports competition **2006** (age 18) Team 3rd place in the nationwide Improvisational theatre sports competition **2004** (age 16) 1st place in the JSI programming competition (nationwide), on the lowest tier

RESEARCH INTERESTS

I am very interested in programming languages, especially as pertaining to parallel processing and building tools to make it safe and easy. My interests in programming languages go beyond that, though I am fascinated by the precise and concise expression of ideas they offer. Building tools to make the practice of programming easier but no less efficient is thus of great importance to me.

I have been interested in cryptography and system security ever since I started programming in my 6th year of primary school, when my first pet projects were (bad) cryptosystems. I took an optional course on cryptography in my 2nd year of BA studies, and attended lectures of a graduate level course on cryptographic hash functions.

COMPETENCES

Languages: Slovenian, English, Croatian (passive)

Programming languages: C++14, C, python, perl, bash, JavaScript, SQL, Java, PHP. Markup: xml, html, css, LaTeX, json, YAML

Other: Linux administration, some Boost libraries, numpy, OpenGL, vim, ssh, the network stack, reading RFCs, etc.

HOBBIES AND OTHER ACTIVITIES

I enjoy programming and finding out new things. I have been playing guitar since I was 7, with 6 years of formal education. I also write music. I did improv theater while in high school and still partake in theatre sports from time to time. I love reading fantasy and science fiction novels. I like playing volleyball, table tennis and cycling. I enjoy philosophy and debate. I also very much enjoy teaching.