Calvin Bulla

Personal Data

Place and Date of Birth: Herne, Germany | 17 June 1994
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Education and Professional Experience

SEP 2015 - *Present*
Master in Innovation and Research in Informatics (120 ECTS)
Universidad Politècnica de Catalunya, Spain
Major: High Performance Computing
Current GPA: 9.1/10 (after 78 ECTS)
Research Student at Barcelona Supercomputing Center, Spain

SEP 2011 - JUL 2015
Undergraduate Degree in Computer Science (240 ECTS)
Universidad de Las Palmas de Gran Canaria, Spain
Thesis: "Analysis of Adaptive Prefetcher Configuration in Advanced Server-Class Processors" | Advisors: Pedro Medina, Marc Casas
GPA: 8.8/10

SEP - DEC 2015
Internship at PlayMedusa
Game and Web development

OCT 2011 - MAR 2014
Assistant at Edataunited S.L.
Mobile and Web development

JUN 2011
Offizielle Deutsche Schule Las Palmas, Spain

Notable Projects

BSC 2016/17
Master Thesis (WIP)
Toolchain for microbenchmark extraction
- Custom assembly parser (implemented in C++)
- Performance monitoring (using `perf_events`)

UPC 2016
GraphCat (github.com/edroque93/GraphCat)
C++ implementation of a graph drawing algorithm.
- Developed during the course "Algorithms for VLSI".
- Takes an adjacency matrix as input and finds best graphical representation.

UPC 2015/16
MIPS-ACE (github.com/cabul/mips-ace)
Verilog implementation of a MIPS-like pipelined processor.
- Developed during the course "Processor Architecture".
- Supports most MIPS instructions and syscalls.
- Cache with pseudo LRU-replacement, 2-bit branch predictor.
- Implemented minimal OS with support for exceptions.
- Custom assembler written in Python.

ULPGC/BSC 2014 **Bachelor Thesis**

"Analysis of Adaptive Prefetcher Configuration in Advanced Server-Class Processors"

Design of a configurable parallel benchmark suite using the OmpSs programming model to stress the prefetcher capabilites of the IBM POWER7 processor.

- The benchmarks run on top of an adaptive runtime system that dynamically reconfigures prefetcher settings based on collected performance metrics.
- Instrumented the runtime system to analyze reconfiguration events.
- Developed in collaboration with Dr. Marc Casas and Dr. Miquel Moretó from the Barcelona Supercomputing Center (BSC).

PLAYMEDUSA 2014 **TriSquad**

Directed a team consisting of 5 students assigned with the following tasks:

- Design and implementation of a 2-Player Strategy Game using Unity and C#.
- Design and implementation of a generic Backend/API to administrate the communication between asynchronous games, using Javascript, NodeJS/Express and MongoDB.

ULPGC 2014 **Radikal Chess** (github.com/cabul/RadikalChess)

Implementation of a chess-like 2-Player Strategy Game and its AI in Java.

- Developed during the course "Fundamentals of Intelligent Systems".
- Tasks included analysis of common AI implementations for chess, design and implementation of an AI Algorithm, considering different Heuristics.

Conferences, Events, and Seminars

PUMPS Summer School 2016	CUDA Lectures | Attendee
HPCA/PPoPP/CGO 2016	Volunteer
RoMoL Workshop 2016	Attendee/Volunteer
Ludum Dare	Design and implementation of a game in 48 hours
Hack for Good	Hackathon at ULPGC | Participant
Math. Olympics	Various participations up to 2007 Best place: Regional 1st (Coesfeld, Germany)

Additional Information

PROGRAMMING LANGUAGES	Java, C#, C/C++ Python, Javascript, Verilog, Bash OpenMP, OmpSs, MPI, CUDA
COMPUTER SKILLS	Unix Environment, LaTeX Basic knowledge of embedded systems (Arduino) Mobile and Web development (Android, NodeJS)
LANGUAGES	Fluent in German, English and Spanish Basic knowledge of French

Research Interests

Parallel programming models	Runtime-aware architectures
Performance analysis techniques	Microarchitecture support for genomics