Anshil Gandhi

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EMPLOYMENT

GPU Compiler Engineer	Advanced Micro Devices Inc.	May 2021 - contd.

Full-time
- ❖ Added builtin support targeting GCN intrinsics in clang.
- ❖ Implemented optimization remarks for FP atomics in the instruction selector.
- ❖ Synchronized HIP atomics with OpenCL atomics.
- ❖ Dealt with compiler regressions in open-source frameworks such as pytorch, rocFFT, rocWaves and onnxruntime.
- ❖ Contributed to passes including clang Sema, branch relaxation, instruction combiner, machine scheduler and tablegen files for codegen.
- ❖ Commits to LLVM trunk: https://reviews.llvm.org/people/commits/20547/

Mentor	Outreachy	May 2021 - Aug 2021

Part-time
- ❖ Mentored an intern to implement GlobalISel instruction selector for the M68k backend in llvm.

Team Lead	Canadian Organization of Undergraduate	June 2020 - March 2021

Part-time — Health Research
- ❖ Led a team to develop an Android application to collect data from patients.

Software Developer	NexOptic Technology	April 2020 - Aug 2020

Student intern — June 2019 - Aug 2019
- ❖ Implemented a Tensorflow based Image Signal Processor, which is an image pipeline of algorithms including bayer transformations and demosaicing, written in Python 3.
- ❖ Maintained and developed features for ALIIS^{TM} on the Android platform in Kotlin.
- ❖ Developed a CMake build system for ALIIS^{TM}.
- ❖ Developed an image streaming desktop application using dcraw, Spinnaker SDK, nuklear and OpenGL libraries, written in C++.
- ❖ Refactored ALIIS^{TM} to process 720p video and improve frame rate by 50%, in C++.
- ❖ Implemented image file converters for PNG, TIFF and DNG in C++.

Student Intern	University of Alberta	July 2016 - Aug 2016

Full-time
- ❖ Implemented reinforcement learning environments for the game of 2048 and mountain car in Python 3.

EDUCATION

B.Sc. in Computing Science and Mathematics	University of Alberta	Sept 2017 - June 2021

Relevant coursework Compiler Design, Machine Learning, Graph theory, GPU programming, Theory of computation, Computer organization and architecture, Algorithms and data structures, Operating Systems, Database Management, Reinforcement learning, Functional and logic programming, Multivariable calculus, Coding theory, Statistics.

PROJECTS

llvm-mos is an open-source LLVM-based compiler for the 6502 processors.
gazc is an LLVM-based compiler frontend for the Gazprea programming language, written in C++.
unixFS is a UNIX-based file system, written in C++.

mapReduce is a thread pool library for computing word count, written in C++.

Lianshell is a UNIX-based shell program, written in C++.

rustic chess is a 3D chess application which uses the bevy ECS game engine, written in Rust.

EulerTikz is an implementation of a force-based layout graph drawing algorithm, written in Python 3.

AWARDS

Open Kattis ranked 206 out of over 5000 problem solvers across the world
HackerRank 6-star gold badge in problem solving
Communitech's Code to Win challenge ranked among the top 75 coders across Canada
RMRC 2019 ranked third place in the ACM's regional programming contest out of 75 teams in the Rocky Mountain region
RMRC 2018 ranked 23rd place in the ACM's regional programming contest out of 65 teams in the Rocky Mountain region

TECHNICAL SKILLS

Programming Languages C/C++; CUDA; OpenCL; Rust; Python; Kotlin; Lisp
Tools and frameworks Android; UNIX; Git; Firebase; SQL; MongoDB