# Carl Pearson

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## Education

Present

*IMPACT Research Group* (University of Illinois at Urbana-Champaign, Urbana, IL)

Ph.D. candidate in Electrical and Computer Engineering

GPA = 3.70

May 2013

Harvey Mudd College, Claremont, CA

BS with High Distinction, Engineering, concentration (minor) in economics

GPA = 3.75, Dean’s List – 2010, 2011, 2012, 2013

Tau beta pi

Harvey Mudd College Scholarship & National Merit Scholarship

## Publications and Patents

**RAI: A Scalable Project Submission System for Parallel Programming Courses** Dakkak, Abdul; Pearson, Carl; Li, Cheng; Hwu, Wen-Mei *Parallel and Distributed Processing Symposium Workshops, 2017 IEEE International*

**Large Inverse-Scattering Solutions with DBIM on GPU-Enabled Supercomputers** Hidayetoglu, Mert; Pearson, Carl; Chew, Weng Cho; Gurel, Levent; Hwu, Wen-Mei *Applied and Computational Electromagnetics Symposium, 2017*

**WebGPU: A Scalable Online Development Platform for GPU Programming Courses** Dakkak, Abdul; Pearson, Carl; Hwu, Wen-Mei *Parallel and Distributed Processing Symposium Workshops, 2016 IEEE International*

**Adaptive Cache Bypass and Insertion for Many-Core Accelerators** Chen, Xuhao; Wu, Shengzhao; Chang, Li-Wen; Huang, Wei-Sheng; Pearson, Carl; Hwu, Wen-Mei *Proceedings of International Workshop on Manycore Embedded Systems, 2014*

**Web-based method for physical object delivery though use of 3d printing technology** United States 20140122579; Filed November 1, 2012

## Awards and Recognitions

2017-2018

Mavis Future Faculty Fellowship, UIUC 2017-2018

2015

Teachers Ranked Excellent by Students, UIUC

## Positions Held

8/15 - present

*Board of Governors*, University YMCA, Urbana, IL

8/15 - 12/15

*ECE 408 TA*,

Advise 12 students teams on CUDA programming projects

6/14 - 8/14, 6/15 - 8/15

*Research Intern*, MulticoreWare Inc., Champaign, IL

BigCode Research Project (see Projects)

Quantify OpenCV face-detection as a quality baseline for a neural-network- based face detector.

5/13 - 8/13

*Co-op Engineer*, Floating Point RTL Team, Advanced Micro Devices, Fort Collins, CO

Implemented portions of CPU flush recovery system in production Verilog.

8/12 – 5/13

*Engineering Contractor*, Layer By Layer LLC, Claremont, CA

Develop a custom C++ library to securely interface open-source personal 3D printers with client applications.

5/12 – 8/12

*Co-op Engineer*, CU Physical Design Team, Advanced Micro Devices, Fort Collins, CO

Combine portions of the cache unit and investigate tradeoffs between synthesis time and performance metrics.

Create tools to provide management and design engineers with simplified access to design project status.

2/12 - 5/12

*Clay-Wolkin Fellow*, Harvey Mudd College, Claremont, CA

Create examples of PIC32 Microcontroller & Cyclone III FPGA input/output using C and SystemVerilog for the second edition of Digital Design and Computer Architecture, by Harris & Harris.

6/10 - 5/12

*Computing and Information Services Helpdesk*, Harvey Mudd College, Claremont, CA

User support and long term projects such as creating lab images and cross-platform calendar integration.

8/11 - 5/12

*Digital Electronics / Microcontroller Lab TA*, Harvey Mudd College, Claremont, CA

## Projects

**Cognitive Application Builder**, UIUC / IBM Center for Cognitive Computing Systems Research (C3SR)

Design and implementation of a tool to improve programmer productivity for cognitive applications.

**Multilevel Fast Multipole Inverse Scattering Solver**, UIUC

State-of- the-art high-performance 2D solver for EM and acoustic fields using CUDA, OpenMP, and MPI

**BigCode**, UIUC / MulticoreWare Inc.

Develop novel automated methods for code and algorithm comparison through LLVM analysis passes.

**10x10**, UIUC

Provide parallel programming expertise for a high-efficiency computing hardware/software codesign project.

Implement computational kernels for custom vector and data-layout- transformation hardware.

**Intel Corporation Clinic Team Member**, Harvey Mudd College

Simulate and analyze constant-time division algorithms for the Many Integrated Core architecture.

Lead author of C++ simulation.

**Oracle Labs Clinic Team Member**, Harvey Mudd College

Design, synthesize, and verify hardware accelerators for arithmetic operations in Oracle Databases.

## Research Interests

High-performance application programming, programming languages

## References

**Wen-mei Hwu**

PhD Advisor

Professor, University of Illinois at Urbana-Champaign

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**Michael Estlick**

Direct supervisor at AMD 2013

Senior Member of Technical Staff, AMD

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**Edward Chang**

Direct supervisor at AMD 2012

VLSI Design Engineer, AMD

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**Josef Spjut**

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Visiting Professor, Harvey Mudd College

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