Matthew Daiter

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EDUCATION

UNIVERSITY OF ILLINOIS, URBANA - CHAMPAIGN
2014-2015, 2019 | Urbana, IL
Electrical Engineering

PHILLIPS EXETER ACADEMY
2010-2014 | Exeter, NH

LINKS

Github:// **mdaiter**
LinkedIn:// **mdaiter**
Quora:// **Matthew-Daiter**
Stack Overflow:// **Matthew Daiter**
Unix and Linux:// **Matthew Daiter**

COURSEWORK

UNIVERSITY OF ILLINOIS, URBANA - CHAMPAIGN
ARCH576: Interactive Design (Spring '15) : A
ECE220: Introduction to Computer Engineering II (Spring '15)
ECE110: Introduction to Electronics : A

HIGH SCHOOL
CSC315: Essential Programming : A
CSC425: Software Engineering : B+
CSC999: Field Course: Operating Systems : A
CSC490: Digital Electronics : A-
PHY381: Electronics : B+

UDACITY
Intro to Parallel Programming
Artificial Intelligence for Robotics

SKILLS

LEADERSHIP
HackIllinois - 2015
Hardware Team Leader.

PROGRAMMING
Proficient:
Scala • C++
JavaScript/Node.js • Erlang
Familiar:
Python • iOS
CUDA • Arduino

EVENTS

HACKATHONS
HackMIT - 2013
Developed neural networks for speech analysis

JOB EXPERIENCE

MAGIC LEAP | Sr./Lead Software Engineer
August 2017 - October 2018 | Sunnyvale, California

- Main performance and optimization individual on team
- Optimized core FPS of distributed software apps by multiples of 3-6x.
- Improved app-facing networking stack communication, increased transmission rates by 3x.
- Cut video-streaming cloud costs by 66% through optimizations

Keywords: C++, Optimization, Android, Binder, Cloud

NOMOKO.CAMERA | Computer Vision Researcher + Lead Distributed Systems Engineer
April 2016 - July 2017 | Zürich, Switzerland

- Created OpenMVG CUDA framework for deep-learned descriptors
- Published feature descriptor research at ECCV Workshops. Outperformed industry standard by five magnitudes while maintaining 95% accuracy
- Converted most of Structure-from-Motion pipeline to CUDA. Latency improved by multiple magnitudes.
- Created Erlang bindings for distributing SfM reconstructions from photos across self-healing cloud

Keywords: Erlang, C++, CUDA, OpenMVG, Riak Core, Computer Vision

APPLE | Undergraduate Technical Intern, WebKit
May 2015 - August 2015 | Cupertino, CA

- Developed getUserMedia() (media capture system) including WebGL-renderer integration and media device scanning system for WebKit

Keywords: C++, C, WebKit, getUserMedia, media capture

INTEL CORPORATION | Undergraduate Technical Intern
July 2014 - August 2014 | Santa Clara, CA

- Developed pupil-tracking and gaze-tracking system using OpenCV
- Robustly tracked the pupil's location in a frame and where a certain individual could be looking on a screen using only commodity hardware.
- Achieved horizontal mouse-positioning accuracy of—on average—50 pixel difference from ground truth on a 1900x1200 pixel screen.

Keywords: OpenCV, C++, C, async development, image processing

VOLUNTEER CONTRIBUTIONS

SWISSNEX (SWISS EMBASSY TECH EXTENSION) | Contributing Author
October 2017 - March 2018 | San Francisco, California

- Contributed insight into business practices between American and Swiss tech sectors
- Wrote a most-viewed article in SwissNex history; top spot on Hacker News for over six hours; brought down SwissNex web server with amount of traffic from readers. Article URL below.

`https://nextrends.swissnexsanfrancisco.org/forging-a-swiss-lens-3-ways-zurich-changed-my-view-of-silicon-valley/`

TEACHING

UNOFFICIAL GRAD STUDENT ASSISTANT - ARCH 574 DATA CITIES: CHICAGO

Helped grad student on final project. Built circuit for and coded motion-detecting illuminating window panel to represent different flows of traffic throughout crossed areas.

GROUPS/CLUBS

HACKILLINOIS - HARDWARE LEADER: 2015

Organize all aspects of HackIllinois hardware competition, including recruiting hardware hackers, ordering hardware, working with mechanical engineer unions to ensure staffed machine/milling shops, and distributing and recollecting hardware at the hackathon.

SIGCOIN CO-CHAIR: 2015

Discuss all topics related to cryptocurrency and Bitcoin. Currently trying to convince local businesses to accept Bitcoin in order to encourage widespread, easy use of said currency.

RESEARCH

MIT MEDIA LAB | Undergraduate Researcher - Lead Software Architect + Engineer, Changing Places Group

June 2012 - August 2012, June 2013 – May 2014 | Cambridge, MA

- CityCar (4 months, worked under Ryan Chin)
  - Developed new algorithms for autonomous driving within cities
  - Designed MapReduce- and Actor Model based algorithms for ad-hoc WiFi cluster computing using Linux and Beaglebone Blacks
  - Designed circuitry, architected software implementation.
  - Started development on a UI for autonomous vehicles.
- MITCityFarm (1 month, worked under Caleb Harper)
  - Developed a Node.js-based security system and architected a Java-based storage system for the MITCityFarm.
  - Developed farm UDP video streaming and monitoring system.
- MITCityHome (5 months, worked with Daniel Goodman and Hasier Larrea)
  - Co-lead the MITCityHome software development team.
  - Developed gesture-enabled and voice-enabled control of the MITCityHome apartment system.
  - Designed the project in Scala with Akka and C++ for Linux for distributed, asynchronous benefits.
  - Later rewrote the entire system in C# for Windows, due to teammates' experience with C#.
  - Video here: https://www.youtube.com/watch?v=f8giE7i7CAE

Keywords: C#, Linux, Erlang, Scala, Java, Cassandra, MapReduce, circuitry, distributed algorithms, Actor model, asynchronous development

AWARDS

2014 INNOVATION BY DESIGN AWARD FINALIST | Awarded to MITCityHome Project

CO.DESIGN'S 10 OF THE MOST FABULOUS HOUSING DESIGNS OF 2014 | Awarded to MITCityHome Project

2ND PLACE - CAPITALONE IEEE HACKATHON - 2014

Created SCVNG - a GPS-enabled iOS-optimized form of Craigslist for food. Used Bitcoin services to minimize consumer transaction costs.

PUBLICATIONS

THE CUDA LATCH BINARY DESCRIPTOR: BECAUSE SOMETIMES FASTER MEANS BETTER - Christopher Parker, Matthew Daiter, Kareem Omar, Gil Levi, Tal Hassner

Accepted to ECCV'16 workshops

PERSONAL PROJECTS

POWERMAT Janruary 2015

Created software for Arduino-based touch screen in Python using CUDA-based kmeans clustering algorithm and kalman filters for MIT Media Lab Research
Keywords: C development, Python, CUDA, Kalman filters, Kmeans

ARPAC - ARDUINO PACKAGE MANAGER October 2012 - November 2012

Created a Portage-like package manager for the Arduino. Developers could upload packages to servers with USE flags, and users could select USE flags to be compiled. Based on the USE flags selected, users could add or drop features from the code.
Keywords: D, text parsing, package manager design