Timothy Alec DuPont Henderson

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Education

PhD in Computer Science, Case Western Reserve University 2011–2013, 2015–May 2017
Proposed Thesis: *Frequency Subgraph Analysis and its Applications.* GPA: 4.0
Research Areas: *Program Analysis, Data Mining, Sampling, Databases, and Distributed Computing.*

BA in Computer Science, Case Western Reserve University 2007–Dec. 2010

Publications

A. Durmaz[†], **T. A. D. Henderson**[†], D. Brubaker, and G. Bebek. *Frequent Subgraph Mining of Personalized Signaling Pathway Networks Groups Patients with Frequently Dysregulated Disease Pathways and Predicts Prognosis.* Pacific Symposium on Biocomputing (PSB). 2016. [†]**Co-First Author**

T. A. D. Henderson, and A. Podgurksi. *Sampling Code Clones from Program Dependence Graphs with GRAPLE.* International Workshop on Software Analytics (SWAN). 2016.

G. Shu, B. Sun, **T. A. D. Henderson**, and A. Podgurski. *JavaPDG: A New Platform for Program Dependence Analysis.* International Conference on Software Testing (ICST). 2013.

Selected Work Experience

Case Western Reserve University Instructor Fall 2014
Instructor for EECS 337 Introduction to Compiler Design and Implementation. I created the syllabus and all course material from scratch including two example compilers targeting x86, and an automated grammar driven fuzz testing framework for grading student compilers. The course covers: formal languages, lexing, parsing, intermediate language design and generation, control flow analysis, data flow analysis, type checking, run time concerns, and x86 assembly generation.

Mobile Defense Inc. Software Engineer January 2013 - May 2015
Shipped production code, features, performance optimizations and bug fixes every week. Lead a team of 5 implementing a program analysis engine for bytecode for the Dalvik Virtual Machine (Android). Created a big data analysis pipeline on top of Amazon EMR for metric analysis and machine learning. Implemented a web service to database static analysis findings for *all* Android applications on Google Play and beyond. Created and maintained the malware scanning system. Lead the transition to Ansible to simplify our process for provisioning configuring and deploying servers on AWS as part of the operations "guild." Helped design and optimize the hiring process for new college graduates including: creating a candidate identification and screening process, creating technical work sample questions, and standardizing evaluation criteria.

Cigital Inc. Intern Summer/Fall 2009 and Summer 2010
Worked on a automation system for commercial static analysis tools. Designed, and built a custom Object Relational Mapping, and Query Language for security findings across a variety of formats. Researched comparing security findings across tools, project versions, and assessments.

Selected Speaking Engagements

SWAN (International Workshop on Sofware Analytics) 2016: *Sampling Code Clones from PDGs.*
PyOhio (pyohio.org). 2010: *Parsing in Python.* 2016: *Managing Infrastructure with Python, Fabric, and Ansible*
CHUG (Cleveland Big Data). Formerly Cleveland Hadoop User Group. 2010: *Distributed Semantic Specification Inference.* 2016: *Towards Next Generation Distributed Frequent Pattern Mining.*
MKE Python (Milwaukee Python Meetup). Upcoming talk in Nov. 2016 on Ansible.
Hacker Society (hacsoc.org). Over 20 lectures since 2009. Jan. 2016: *Scaling Frequent Subgraph Mining.* Oct. 2016: *The Ubiquitous B+Tree.*

Selected Programming Languages and Technologies

Python, Go, Java, C, Ruby, BASH, x86, Linux, MySQL, Hadoop, Ansible, Fabric, Pyramid, SqlAlchemy, Redis.