Stewart S. Grant

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https://wantonsolutions.github.io/

PUBLICATIONS (Papers)

SmartNIC Performance Isolation with FairNIC
Stewart Grant, Anil Yelam, Maxwell Bland, Alex Snoeren
Sigcomm 2020

Inferring and Asserting Distributed System Invariants.
Stewart Grant, Hendrick Cech, Ivan Beschastnikh.
International Conference on Software Engineering ICSE 2018

Dancing in the Dark: Private Multi-Party Machine Learning in an Untrusted Setting
Clement Fung, Jamie Koerner, Stewart Grant, Ivan Beschastnikh
Archive 2019

PUBLICATIONS (Posters)

Stewart Grant, Ivan Beschastnikh. Distributed Test Case Generation using Model Inference with Dara Proceedings of the 15th USENIX Symposium on Networked Systems Design and Implementation, NSDI 2018, Renton, Washington, USA. (Poster)

Stewart Grant, Sam Creed, Ivan Beschastnikh. Inferring data invariants in distributed systems. In Proceedings of the 25th ACM Symposium on Operating Systems Principles, SOSP 2015, Monterey, California, USA. (Poster)

RESEARCH

FairNIC *2020*
Fair sharing on SmartNIC's
- *FairNIC isolates SmartNIC resources so multiple applications can colocate.*
- *https://github.com/wantonsolutions/NetCrash*

Dara [In development] *2017*
Distributed dynamic verification
- *Dara models distributed systems from execution logs. Models are checked against specifications.*
- *https://github.com/wantonsolutions/dara*

TorMentor *2017*
Anonymous multi party machine learning
- *A collaborative machine learning framework that operates through Tor.*
- *https://github.com/DistributedML/TorML*

Dviz [In development] *2016*
Distributed State Visualizer
- *Pangaea plots distributed snapshots by grouping snapshots with similar states.*
- *https://ww ¡p¿ TorMentor is a collaborative machine learning framework that operates through Tor. TorMentor clients participate in a federated learning algorithm. Clients are protected from the de-anonymization of their data via differential privacy.¡/p¿ w.github.com/zipengliu/Pangaea*

Obeah [In development] *2016*
SMT guided distributed fuzz tester

- *Obeah fuzzes systems by modifying messages specifically to trigger unusual control flow.*
- *https://www.github.com/wantonsolutions/obeah*

Dinv *2015-2017*
Distributed System Invariant Detector
- *Developed novel distributed state merging algorithms, and automatic instrumentation techniques.*
- *https://bitbucket.org/bestchai/dinv*

Dovid *2015-2016*
Distributed System Documenter
- *Dovid automatically generated documentation for distributed systems.*
- *Documentation includes descriptions of variables affected, and affecting network traffic, and network communication points.*
- *https://bitbucket.org/wantonsolutions/Dovid*

Repograms *2015*
Code Repository Visualization, and Comparison Tool
- *Developed three analysis metrics, providing proximate development time for researches unfamiliar with the tool.*
- *http://repograms.net*

All research mentored by Dr.Ivan Beschastnikh

EDUCATION

PhD, Computer Science
University of California San Diego
Expected 2024

MSc, Computer Science *2018*
University of British Colombia, Vancouver, BC

Bachelors of Science, Computer Science *2016*
University of British Colombia, Vancouver, BC

Associate of Science, Computer Science *2011-2013*
Langara College, Vancouver, BC

EMPLOYMENT

Research Intern *2017*
INRIA Rennes 1, ASAP (As scalable as possible)
- *Built a framework for model checking distributed, from runtime logs*

Research Assistant *2017*
University of British Columbia, Under Ivan Beschastnikh
- *Oversaw various research projects*

Undergraduate Research Assistant *2015-2016*
University of British Columbia, Department of Computer Science

- *Designed and developed Dinv, a tool for checking data invariants in distributed system.*

Teaching Assistant *2015-2016*
University of British Columbia, Department of Computer Science
- *One semester TA in distributed systems 416* *2017*
- *Three semester TA in software engineering 310* *2015-2016*

Lab Assignment Author *2013*
Langara College Computer Science Department
- *Developed lab assignments for Object Oriented Programming, and introduction to assembly, CPSC 1181, and 2180 respectively.*

AWARDS

NSERC USRA Award *2016*
Rick Sample Summer Internship *2015*
Science Undergraduate Research Experience Award *2015*

VOLUNTEER

Conference Volunteering *2017*
- *Student Voulenteer SPLASH 2017*

Reviewing *2017*
- *ACM CHI 2018*
- *Journal of Systems and Software*

Computer Science Student Society Officer *2015*
- *Assisted with fund raisers, and event organization*
- *Volunteered with treasury for money counts*

OWL (Orphaned Wildlife Foundation) *2007 - 2008*
- *Assisted in the rehabilitation, and ongoing care of injured birds of prey*

COMPUTER SKILLS

Programming Languages: Go, C, Bash, JavaScript, Java
Operating System: Linux, Windows
Text Manipulation: Vim, Git, LaTeX

HOBBY PROJECTS

Distributed Clocks *2015-2017*
Optimized inter-operable vector clock library
- *Distributed clocks implements vector clocks in Go, Java, C++ and C*
- *https://github.com/DistributedClocks*

Pollock *2015*
Abstract Github contribution visualizer
- *Pollock generates splatter painting based on the contribution history of Github repositories. The Thickness and direction of the paint splatters is derived from the individual contributors, and the frequency and volume of their commits.*
- *Written in, Java, Bash, Ruby, Processing2*
- *https://github.com/wantonsolutions/Pollock*

ChocOS *2015*
Operating System Kernel

- *ChocOS is a minimal operating system, providing memory management, process scheduling, keyboard IO, and IPC via signalling and message passing.*
- *written in C*
- *https://github.com/wantonsolutions/ChocOS*

INTERESTS *Computing: Distributed Systems, Operating Systems, Algorithm Design and implementation, and System Analysis.*
Extra Curricular: Rock Climbing, Experimental Music, Hiking, Juggling.