Vaastav Anand

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TECHNICAL SKILLS

Languages : C++, Golang, Python, C, Java, Julia, R, JavaScript, CUDA
Tools : GDB, IntelliJ, Eclipse, Visual Studio, Git, Perforce
Others : SQL, Qt, Unix, Gtest, Boost Test

PUBLICATIONS

- Sifter: Scalable Sampling for Distributed Traces, without Feature Engineering. Pedro Las-Casas, Giorgi Papkerashvili, Vaastav Anand, and Jonathan Mace. (SoCC 2019)
- Dara: Hybrid Model Checking of Distributed Systems. Vaastav Anand. (SRC, FSE 2018)

WORK EXPERIENCE

Research Intern, Max Planck Institute for Software Systems May 2019 – Aug 2019

- Developed Sifter, a general-purpose, scalable biased sampling tool for Distributed Tracing. Sifter captures qualitatively more diverse traces, by weighting sampling decisions towards edge-cases, infrequent request types, and anomalous events.
- Designed and developed Cobbler, a tool for automatically instrumenting source code of distributed systems for producing distributed traces.

Research Assistant, UBC CS NSS Lab May 2018 – current

- Developed Dara, a model checker for checking safety properties in distributed systems.
- Updated the API of GoVector, an open source vector clock logging library in Go.

Software Engineering Intern, MODS Team, NVIDIA (C++) May 2017 – Aug 2017

- Implemented memory repair sequences as scripts to repair bad parts of High Bandwidth Memory (HBM). This resulted in increasing GPU yield.
- Designed, developed, and implemented a CUDA based linpack test to stress every bit of memory to weed out GPUs with bad memory in the early stages of production.
- Constructed an internal website to track different releases of the MODS application.
- Ported CUDA threading stress tests from CUDA dev applications to MODS.

Software Engineering Intern, MODS Team, NVIDIA (C++) May 2016 – Aug 2016

- Implemented a synchronization option for CUDA based linpack stress tests in MODS to synchronize CUDA kernel launches within 30µs across multiple GPUs in multi-GPU systems like DGX systems.
- Ported MODS code and windows builds to msvc140 from msvc90 to enable C++11.

Software Developer, Sequoia, Thinkbox Software (C++) Sep 2015 – Apr 2016

- Designed, developed and implemented the frontend and backend of the 3D PDF export option in Sequoia which allowed users to export their 3D models in PDF files by implementing a writer class for the U3D file format.
- Implemented import options for Lidar point cloud files of various industrial scanners.
- Implemented binary string obfuscation making the licensing system more secure.
- Ported Unit tests from Boost Test Framework to Google Test Framework.

Research Assistant, Interdisciplinary Speech Research Lab (Python)Nov 2017 – Apr 2018

- Created a game that allows players to measure the accuracy of their pitch of phrases and words in tonal languages.

Teaching Assistant, UBC CS Department Sep 2014 – current

- TA for Graduate Operating Systems, Intermediate Algorithm Design, Computer Systems, and Distributed Systems courses over 10 different school terms.
- Lab Planner and Lead TA for CPSC 121 Models of Computation in Summer 2015.

PROJECTS

Cobbler: Automatic Instrumentation of Distributed Systems (Java) Jul 2019 – current

- A hybrid static and dynamic analysis tool for automatically instrumenting distributed systems for supporting distributed tracing.
- **Graph Processing Systems Benchmarking Study Feb 2019 – Oct 2019**
- A study of benchmarking practices for graph processing systems that analyzes the various pitfalls and common mistakes made by the developers during benchmarking.

Dara: Hybrid Model Checking of Distributed Systems (Golang) May 2018 – current

- Model checker that combines the speed of a traditional model checker with the realism of an implementation level model checker to find heisenbugs in distributed systems

GoVector: Vector Clock Logging Library (Golang) May 2018 – current

- A logging library which implements the vector clock algorithm.
- Re-structured the source code and re-designed the API for a v1.0 release and for future extensibility. Main maintainer of the library since May 2018.

EDUCATION

MSc, Computer Science, University of British Columbia Sep 2018 – current

- Working under the supervision of Dr. Ivan Beschastnikh

BSc, Computer Science, University of British Columbia Sep 2013 – May 2018

- ACM ICPC PacNW Regional Contest 2017 Division 2 Champion

Undergraduate Research Opportunities Conference, University of Waterloo Oct 2015

- Worked on a mini research project of protein identification in mass spectrometer data.

AWARDS & ACHIEVEMENTS

Symposium on Cloud Computing Student Scholarship **Sep 2019**
2nd Place, FSE'18 Student Research Competition **Nov 2018**
SIGSOFT CAPS Award **Aug 2018**
UBC International Tuition Award **Aug 2018 - Aug 2019**
Work Learn International Undergraduate Research Award **May 2018**
Trek Excellence Scholarship **Jan 2017, 2018**
CS Student Service Award **Sep 2015**
UBC Faculty of Science International Student Scholarship **Jan 2015, 2018**
Dean's Honor List **May 2014, 2015, 2017**

VOLUNTEERING & ACADEMIC SERVICE

Program Committee

- Member of CS-Can Student Symposium 2019

Conference Sub-Reviewing

- Sub-Reviewer for Dr. Ivan Beschastnikh: NSDI'20, ESEM'18, FSE NIER'18, IST, JSE
- Sub-Reviewer for William Anthony Mason: SIGCSE'19

Program Experience Committee, CS Dept.

- Assisted faculty members in improving student experience in the CS Department.

SKILLS & INTERESTS

Writing : Writing poems and short stories
Hobbies : Learning new languages, playing soccer, and playing the piano
Languages : English, Hindi, Italian, French, Bengali