

Damien Michael CARVER

As PhD student in C.S., I study Operating System Level Virtualization as a means of improving resource utilization. I have shown that the Linux kernel cannot consolidate the memory of inactive containers without disturbing the services of active containers. My kernel patches aim at detecting memory activities to prevent consolidation errors.

PERSONAL DATA

NATIONALITY AND DATE OF BIRTH: Mauritian | 22 May 1991
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PUBLICATION

OCT 2017 ACDC: advanced consolidation for dynamic containers
in 16th IEEE International Symposium on Network Computing and Applications, NCA'17,
Cambridge, MA, USA, October 30 - November 1, 2017, 2017, pp. 253–260.

TEACHING

Dec 2017 Container Virtualization 12 Hours, 30 students, Master 2nd year, UPMC

WORK EXPERIENCE

DEC 2014 | Software Engineer at AGENCY DIGITAL, Paris
APR 2015 | Improved infrastructure utilization with Container Virtualization.
FEB 2016 | Internship Supervisor Assistant
JUN 2016 | Fighting Memory Fragmentation caused by Virtualization using Linux refault distance.
APR 2014 | Intern at TOTAL E&P R&T, Houston
AUG 2014 | Prototyped an I/O scheduling algorithm using *Graph of Tasks Programming Models* and contributed to software development.

EDUCATION

APRIL 2015 PhD Student at LIP6 INRIA, Paris
CURRENTLY Improving the memory consolidation of the Linux kernel cgroup feature.
SEP 2012 M.S. in COMPUTER SCIENCE, University of Pierre and Marie Currie, Paris
AUG 2014 Major: *Distributed Systems and Applications* | Good Grade
SEP 2009 B.S. in COMPUTER SCIENCE, University of Pierre and Marie Currie, Paris
AUG 2012 Majors: *Computer Science* and *Applied Mathematics* | Good Grade

LANGUAGES

ENGLISH: Fluent, [CLES B2](#) FRENCH: Mother tongue

INTERESTS AND ACTIVITIES

Rollerblade, Ice Skating, Skateboard, Video Gaming.

TECHNICAL SKILLS AND TOOLS ENHANCED DURING MY PHD

KERNEL DEVELOPMENT IN C	I studied and modified pieces of Linux kernel memory management which include the <code>mm/memcontrol.c</code> and <code>mm/vmscan.c</code> files. https://github.com/carverdamien/linux
DOCKER	I used Docker as the container engine for my experiments. At Magency Digital, I improved infrastructure utilization thanks to Docker. At UPMC, I wrote a short series of exercise on Docker as part of a course on Container Virtualization. https://github.com/carverdamien/tuto-docker .
QEMU	I used Qemu for kernel testing and debugging.
PYTHON	I used python to process and visualize the data generated by experiments (numpy, pandas, pyplot and seaborn).
SYSBENCH, MEMTIER, FILEBENCH	I extensively used these benchmarking tools to evaluate my work. I fixed and modified some of them to suite my needs.
INFLUXDB, GRAFANA	I used these tools to record and visualize the data of my experiments because live feedbacks helped me fine tune my experiments faster.

SKILLS AND TOOLS PREVIOUSLY ACQUIRED

MPI, OPENMP, HADOOP	are programming paradigms that I studied during my master. I love how easy it is to express and exploit parallelism with them.
C++, JAVA, OBJECTIVE-C, FORTRAN	are languages that I encountered during my master. I prototyped a parallel and concurrent SAT solver in C++ during my first internship. I had many course projects in Java and Objective-C. My software development experience at TOTAL E&P R&T was in Fortran.