

ADAM DECONINCK

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SUMMARY

Computer systems engineer with experience designing, deploying, and productionizing very large parallel and distributed computing systems.

PROFESSIONAL EXPERIENCE

Facebook, Inc.

Production Engineer

2017 - Present

Seattle, WA

Production support for Warm Storage, an exabyte-scale distributed filesystem with multiple deployments at Facebook. Development of deployment automation, monitoring tools, and administrative tooling for working with Warm Storage deployments. Design, development, and rollout of new features to improve the reliability and scalability of the storage system. Provided mentorship and assistance for junior colleagues.

Los Alamos National Laboratory

HPC Cluster Administrator

2014 - 2017

Los Alamos, NM

Deployment and production support for several Top 500 supercomputers, including Cray systems (*Trinity* and *Cielo*) as well as commodity clusters. This included development of automation, monitoring systems, and configuration management for these platforms, as well as integration of new platforms with the existing computing environment at LANL. I also coordinated the change management process for our production HPC cluster platforms, and published reports and peer-reviewed papers on our systems deployment, design, and production experiences. I held a Department of Energy Q security clearance, and assisted with the review of sensitive information to determine classification status and suitability for release (Derivative Classifier). While performing this role, I was promoted one grade from Scientist II to Scientist III.

NVIDIA Corporation

HPC/Cloud Systems Engineer

2012 - 2014

Santa Clara, CA

Built, managed and supported a varied collection of computing systems for the Solution Architect Team at NVIDIA. Responsibilities included both hardware and software support, planning the procurement of new hardware, user support, and working with Facilities to better support the needs of the hardware platforms. Supported systems included HPC systems focused on GPGPU computing (Cray XK7, Cray XC-30, two small commodity clusters), as well as virtualization platforms (VMWare, XenServer) and development servers. User base for these systems included NVIDIA customers, internal and external developers, and marketing benchmarks. Design and deployment of backend for a cloud-based CUDA training platform and event-specific infrastructure for training events at GTC 2013, GTC 2014, and Supercomputing 2013.

R Systems NA, Inc

Systems Engineer

2010 - 2012

Champaign, IL

Production support for custom HPC solutions at a provider of commercial “HPC as a Service” computing systems. Responsibilities included end-to-end support for a given customer deployment, including evaluating their expected requirements; designing a cluster deployment on existing hardware; deploying the system; and providing user support throughout the customer’s project. Deployed or supported

clusters using a variety of software stacks, including RHEL 5, RHEL 6, Ubuntu 10.04, and Windows 2008 R2 operating systems; Torque/Maui, Slurm, Sun Grid Engine, and Microsoft HPC Pack cluster managers.

University of Illinois Urbana-Champaign

2007 - 2010

Graduate Research Assistant

Urbana, IL

Scientific research on the fabrication of hydrogel microparticles with anisotropic shape and composition (“patchy” particles), as well as their dynamics when placed in colloidal suspension. Developed new microfluidic devices to assist in the fabrication and study of these particles, and developed software for the analysis of confocal microscopy imaging data. Also fabricated a specialized version of these particles for use in a novel form of DNA genotyping, and assisted in analysis of data regarding their performance.

Dow Corning Corporation

2006

Contractor

Midland, MI

Developed and built a test station for measuring the performance of large-area organic light-emitting devices, including both electrical characteristics and imaging of device defects.

Michigan State University

2005

Undergraduate Research Assistant

East Lansing, MI

Analysis of neutron scattering data across the phase diagram of the LMCO manganite system to determine the relationship between colossal magnetoresistance and a distortion in the material’s crystal structure (Jahn-Teller effect).

Michigan Technological University

2004-2005, 2006-2007

Undergraduate Research Assistant

Houghton, MI

Fabrication of nanomaterials by plasma-enhanced chemical vapor deposition and pulsed-laser deposition, including carbon and boron-nitride nanotubes.

EDUCATION

University of Illinois Urbana-Champaign

2010

M.S. in Materials Science & Engineering

Michigan Technological University

2007

B.S. in Physics; Minors in Mathematics and in Electronic Materials

PROGRAMMING LANGUAGES

Python	Systems management tooling and automation. Simulation and data analysis with NumPy, Matplotlib, and Jupyter.
Go	Command-line tools, small network services.
Fortran	Scientific computing, mostly writing or debugging MPI code.
Perl	Systems management tools and command-line scripts.
C & C++	Command-line tools, bugfixes, and improvements to operability.
Clojure	Small network services, sheer fun of programming.

SYSTEMS MANAGEMENT TECHNOLOGIES

Hardware platforms	Open Compute Platform (@FB); Cray XE6, XK7, XC-30, XC-40; Misc deployments on Dell, HP, SuperMicro, and Cray (Appro)
Cloud platforms	Amazon EC2, S3, VPC, Route 53; Digital Ocean; Azure Compute
Workload Managers	Slurm, Torque, Moab/Maui, Grid Engine (HPC); Facebook Tupperware, Kubernetes (container management)
Config. management	Ansible, Chef, Cfengine
Monitoring	Nagios, Zenoss, Splunk, ELK stack, collectd; LDMS, Baler, Ganglia
System deployment	Warewulf, Perceus, Cobbler/Kickstart, CloudFormation (EC2)
Distributed filesystems	Warm Storage, Lustre, HDFS, Gluster
Virtualization (on-site)	Citrix XenServer, VMWare vSphere, KVM on RHEL

PUBLICATIONS AND PRESENTATIONS

A. DeConinck, H. Nam, D. Morton, A. Bonnie, C. Lueninghoener, J. Brandt, A. Gentile, K. Pedretti, A. Agelastos, C. Vaughan, S. Hammond, B. Allan, M. Davis and J. Repik, “Runtime collection and analysis of system metrics for production monitoring of Trinity Phase II” *Proc. Cray User’s Group*, May 2017.

A. DeConinck, A. Bonnie, K. Kelly, S. Sanchez, C. Martin, M. Mason, J. Brandt, A. Gentile, B. Allan, A. Agelastos, M. Davis and M. Berry, “Design and implementation of a scalable monitoring system for Trinity”, *Proc. Cray User’s Group*, May 2016.

P. Peltz, **A. DeConinck**, D. Grunau, “How to Automate and Not Manage under Rhine/Redwood”, *Proc. Cray User’s Group*, May 2016.

S. Sanchez, A. Bonnie, G. Van Huele, C. Robinson, **A. DeConinck**, K. Kelly, Q. Snead and J. Brandt, “Design and implementation of a Scalable HPC Monitoring System”, *Wrk. on Monitoring and Analysis for High Performance Computing Systems Plus Applications (HPCMASPA) Proc. IEEE Int’l Parallel and Distributed Processing Symposium (IPDPS)*, May 2016.

A. DeConinck and K. Kelly, “Evolution of Monitoring Over the Lifetime of a High Performance Computing Cluster,” *Wrk. on Monitoring and Analysis for High Performance Computing Systems Plus Applications (HPCMASPA) Proc. IEEE Int’l Conf. on Cluster Computing (CLUSTER)*, September 2015.

A. J. DeConinck, “Tools and Tips for Managing a GPU Cluster,” GPU Technology Conference, S4253, March 2014.

A. J. DeConinck, “Introduction to the CUDA Toolkit for Building Applications,” Skype presentation for the Third EasyBuild Hackathon, invited talk, March 2013.

A. J. DeConinck and W. Scheel (joint presentation), “Introduction to High-Performance Computing,” *Society of Actuaries Life & Annuity Symposium*, invited talk, May 2011.

W. Wu, **A. J. DeConinck** and J. A. Lewis, “Omnidirectional printing of 3D microvascular networks,” *Advanced Materials*, March 2011.

H. Zhang, **A. J. DeConinck**, S. C. Slimmer, P. S. Doyle, J. A. Lewis and R. G. Nuzzo, “Genotyping by alkaline dehybridization using graphically encoded particles,” *Chemistry: A European Journal*, February 2011.

A. J. DeConinck, “Fabrication, dynamics and self-assembly of anisotropic colloidal particles,” Masters thesis, University of Illinois at Urbana-Champaign, December 2010.

E. Bozin, M. Schmidt, **A. J. DeConinck**, G. Paglia, J. F. Mitchell, T. Chatterji, P. G. Raedelli, Th. Proffen and S. J. L. Billinge, “Understanding the Insulating Phase in Colossal Magnetoresistance

Manganites: Shortening of the Jahn-Teller Long-Bond across the Phase Diagram of $La_{1-x}Ca_xMnO_3$,” *Physical Review Letters*, March 2007.

B. Ulmen, V. K. Kayastha, **A. J. DeConinck**, J. Wang, Y. K. Yap, “Stability of field emission current from various types of carbon nanotube films,” *Diamond and Related Materials*, September 2005.

AWARDS AND HONORS

Los Alamos Distinguished Performance Award for work on the *Trinity* deployment, 2016.

Los Alamos Awards Program award for work on *Trinity* factory testing, 2016.

National Defense Science and Engineering Graduate Fellowship, 2008 - 2011.

Graduate mentor, Intel Scholars for Undergraduate Research program for improving representation of women in science and engineering, 2008 - 2009.

Ian W. Shepherd Memorial Award (co-recipient), Michigan Technological University Department of Physics, 2007.

Michigan Technological University Provost’s Award for Scholarship, 2006.

Michigan Space Grant Consortium Undergraduate Research Fellowship, 2004 - 2005.

Michigan Technological University Scholar Award, 2003 - 2007.

National Merit Scholarship, 2003 - 2007.

MEMBERSHIPS

Association for Computing Machinery (ACM)

ACM Special Interest Group for High-Performance Computing (SIGHPC)

League of Professional System Administrators (LOPSA)

USENIX

Granite Curling Club of Seattle

OPEN SOURCE CONTRIBUTIONS

EasyBuild 2013-2014

Tool to automate software builds on HPC clusters

Python

Provided advice and support on development tool-chains for NVIDIA GPUs. Wrote initial version of “dry run” functionality. Added build recipes for Go, Node.js, and Erlang.

Warewulf 2011-2012

Cluster provisioning tool

Perl

Beta tester for Warewulf 3.0 (complete rewrite). Added several commands to IPMI interface for interacting with compute node BMCs. Miscellaneous bug fixes and minor features.