

# Alexander Van't Hof

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## Research Interests

Operating Systems, Mobile Computing, Virtualization, Networking

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## Education

- 2013–Present **Doctor of Philosophy**, *Columbia University*, New York, NY, *Computer Science*.  
Advisor: Jason Nieh  
Successfully Defended: March 10, 2022
- 2013–2015 **Master of Philosophy**, *Columbia University*, New York, NY, *Computer Science*.
- 2010–2011 **Master of Science**, *Columbia University*, New York, NY, *Computer Science*.
- 2006–2010 **Bachelor of Science**, *Michigan Technological University*, Houghton, MI, *Computer Science*.  
Summa Cum Laude

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## Work Experience

- Jan 2013–Present **Graduate Research Assistant**, *Columbia University*, New York, NY.
  - Built a cloud-container architecture enabling container memory confidentiality and integrity.
  - Built a drone-as-service solution making drones accessible in the cloud.
  - Co-built a framework for sharing mobile device hardware.
  - Co-built a kernel-level system enabling Android phones to run unmodified iOS applications.
- June 2013–Jul 2015 **Services Research Intern**, *IBM Research*, Yorktown Heights, NY.
  - Built a system enabling live migration of Android applications between heterogeneous devices.
  - Developed post-copy based live migration of Docker containers.
- June 2011–Jan 2013 **Senior Software Developer**, *Cellrox, Ltd.*, Tel Aviv, Israel.  
First employee at mobile virtualization startup (\$4.7 million series A round funding, Dec. 2012).
  - Designed and developed substantial portions of Cellrox's early framework.
  - Thoroughly investigated and modified portions of the Android operating system.
  - Frequently led designs, mentored colleagues, and acted as a critical source of knowledge for others.
- Aug 2012–Dec 2012 **Head Teaching Assistant (Operating Systems)**, *Columbia University*, New York, NY.
  - Designed and solved assignments involving the Linux kernel and Android userspace.
  - Created custom version of ReviewBoard to allow students to anonymously grade each other.
  - Maintained Git repositories used by students for working on and submitting assignments.
- June 2010–Aug 2011 **Web Operations Intern/On Call Associate**, *American Greetings*, Cleveland, OH.
- Feb 2012–June 2012
  - Involved in deployment, operation, and maintenance of Linux-based web and development servers.
  - Automated installations of Xen hosts, load balancers, development servers, and web servers.
  - Completed Python-based web application for scheduling tasks and maintaining PCI compliance.

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## Awards/Scholarships

- 2014 IBM Ph.D. Fellowship
- 2014 Columbia CS Dept., Kosoresow Award for Outstanding Performance in TA-ing and Service
- 2012 National Science Foundation Graduate Research Fellowship Honorable Mention
- October 2011 23rd Symposium on Operating System Principles Best Paper Award
- Fall 2008 Michigan Tech Class of 1959 Scholarship
- 2006-2010 Michigan Tech Presidential Scholar of Excellence

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## Technical Skills

Expert	C, C++, Java	Expert	Python, Bash shell scripting
Expert	Android framework code	Expert	Linux system administration
Expert	Linux kernel development	Proficient	SQL (MySQL, SQLite)

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## Publications

- [1] N. AlDuaij, A. Van't Hof, J. Nieh. Heterogeneous Multi-Mobile Computing. *Proceedings of the 17th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys 2019)*, Seoul, South Korea, Jun. 2019.
- [2] A. Van't Hof, J. Nieh. AnDrone: Virtual Drone Computing in the Cloud. *Proceedings of the 14th ACM European Conference on Computer Systems (EuroSys 2019)*, Dresden, Germany, Mar. 2019.
- [3] A. Van't Hof, H. Jamjoom, J. Nieh, and D. Williams. Flux: Multi-Surface Computing In Android. *Proceedings of the 10th ACM European Conference on Computer Systems (EuroSys 2015)*, Bordeaux, France, Apr. 2015.
- [4] J. Andrus, A. Van't Hof, N. AlDuaij, C. Dall, N. Viennot, and J. Nieh. Cider: Native Execution of iOS Apps on Android. *Proceedings of the 19th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2014)*, Salt Lake City, UT, Mar. 2014.
- [5] C. Dall, J. Andrus, A. Van't Hof, O. Laadan, and J. Nieh. The Design, Implementation, and Evaluation of Cells: A Virtual Smartphone Architecture. *ACM Transactions on Computer Systems (TOCS)*, 30(3):9:1–9:31, Aug. 2012 (Invited Paper).
- [6] J. Andrus, C. Dall, A. Van't Hof, O. Laadan, and J. Nieh. Cells: A Virtual Mobile Smartphone Architecture. *Proceedings of the 5th Annual Haifa Experimental Systems Conference (SYSTOR 2012)*, Haifa, Israel, Jun. 2012 (Invited Paper).
- [7] J. Andrus, C. Dall, A. Van't Hof, O. Laadan, and J. Nieh. Cells: A Virtual Mobile Smartphone Architecture. *Proceedings of the Twenty-Third ACM Symposium on Operating Systems Principles (SOSP 2011)*, Cascais, Portugal, Oct. 2011 (Best Paper Award).

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## Technical Reports

- [1] N. AlDuaij, A. Van't Hof, and J. Nieh. Heterogeneous Multi-Mobile Computing. *Technical Report CUCS-008-16*, Dept. of Computer Science, Columbia University, Aug. 2016.
- [2] N. AlDuaij, A. Van't Hof, and J. Nieh. M2: Multi-Mobile Computing. *Technical Report CUCS-005-15*, Dept. of Computer Science, Columbia University, Mar. 2015.
- [3] J. Andrus, A. Van't Hof, N. AlDuaij, C. Dall, N. Viennot, and J. Nieh. Chameleon: Multi-Persona Binary Compatibility for Mobile Devices. *Technical Report CUCS-011-13*, Dept. of Computer Science, Columbia University, Apr. 2013.
- [4] J. Andrus, C. Dall, A. Van't Hof, O. Laadan, and J. Nieh. Cells: A Virtual Mobile Smartphone Architecture. *Technical Report CUCS-022-11*, Dept. of Computer Science, Columbia University, May 2011.