

# Asaf Cidon

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<http://www.asafcidon.com>

## RESEARCH INTERESTS

Software systems, machine learning for systems, cybersecurity.

## EDUCATION

**Stanford University** Oct 2010 - Jan 2015  
*PhD, Electrical Engineering*  
*MS, Electrical Engineering*  
*Thesis: Data Durability in Cloud Storage*  
*Supervisors: Mendel Rosenblum and Sachin Katti*

**Technion, Israel Institute of Technology** Mar 2007 - Sep 2010  
*BSc Computer and Software Engineering Cum Laude*

## EXPERIENCE

**Columbia University** July 2019 - Present  
*Assistant Professor, Electrical Engineering and Computer Science (jointly affiliated)*  
Conducting research in distributed storage systems, ML for systems and cybersecurity.

**Barracuda Networks** Mar 2016 - July 2019  
*Senior Vice President, Email Protection*  
Co-GM of Barracuda's email protection business, including email security and archiving. Joined via the acquisition of Sookasa, a startup I co-founded and where I was the CEO. Co-led Barracuda's Email Protection business, which generates +\$200M in revenue, is growing fast and consists of 100 engineers and product managers. While at Barracuda, my team built and launched some of the company's top-selling products: 1. Barracuda Sentinel, the industry's first and most advanced AI for spear phishing, account takeover and cyber fraud defense. 2. Barracuda Forensics and Incident Response, the fastest and most comprehensive platform to identify, investigate and remediate security incidents.

*Researcher*  
Jan 2015 - Present  
Mentored a PhD student (Assaf Eisenman) and two interns (Jenya Pergament and Or Haimovich) in the design and implementation of novel distributed storage systems. Co-led an NSF funded project with two Princeton professors and a PhD student (Amy Tai) in enabling software control of storage reliability and error correction in data centers.

**Sookasa (Acquired by Barracuda Networks)** Jul 2012 - Mar 2016  
*CEO and Co-founder*  
Founded, recruited and managed 20 person startup. Led the design and implementation of a novel cloud file sharing encryption and data leak prevention platform. Raised \$8M from leading investors, including Accel Partners, Andreessen Horowitz and First Round Capital.

**Stanford University** Oct 2010 - Jan 2015  
*Research Assistant*  
Conducted research in distributed storage systems with a focus on reliability. Conceptualized and implemented novel data replication frameworks, adopted by several companies, including Facebook, Hortonworks, Tibco, NetApp and Chartbeat. Led projects in cloud storage, wireless networking and mobile systems under Professors Mendel Rosenblum and Sachin Katti.

**Google** Jul 2009 - Jul 2010  
*Research Intern*  
Worked as a researcher at Google's web search team in Israel. Helped design and launch Google Related product. Developed page classification and recommendation algorithms.

## PEER-REVIEWED PUBLICATIONS

### **High Precision Detection of Business Email Compromise**

Asaf Cidon, Lior Gavish, Itay Bleier, Nadia Korshun, Marco Schweighauser, Alexey Tsitkin

Usenix Security 2019

Acceptance rate: 19%

### **Examining Lateral Phishing at Scale**

Grant Ho, Asaf Cidon, Lior Gavish, Marco Schweighauser, Vern Paxson, Stefan Savage, Geoff M. Voelker and David Wagner

Usenix Security 2019

Acceptance rate: 19%

### **Live Recovery of Bit Corruptions in Datacenter Storage Systems**

Amy Tai, Andrew Kryczka, Shobhit Kanaujia, Kyle Jamieson, Michael J. Freedman and Asaf Cidon

ATC 2019

Acceptance rate: 20%

### **Bandana: Using Non-volatile Memory for Storing Deep Learning Models**

Assaf Eisenman, Maxim Naumov, Darryl Gardner, Misha Smelyanskiy, Sergey Pupyrev, Kim Hazelwood, Uladzimir Pashkevich, Asaf Cidon, Sachin Katti

SysML 2019

Acceptance rate: 17%

### **Flashield: a Key-value Cache that Minimizes Writes to Flash**

Assaf Eisenman, Asaf Cidon, Evgenya Pergament, Or Haimovich, Mohammad Alizadeh, Ryan Stutsman, Sachin Katti

NSDI 2019

Acceptance rate: 15%

### **Reducing DRAM Footprint with NVM in Facebook**

Assaf Eisenman, Darryl Gardner, Islam AbdelRahman, Jens Axboe, Siying Dong, Kim Hazelwood, Asaf Cidon, Sachin Katti

Systor 2018 (highlight paper)

### **Reducing DRAM Footprint with NVM in Facebook**

Assaf Eisenman, Darryl Gardner, Islam AbdelRahman, Jens Axboe, Siying Dong, Kim Hazelwood, Asaf Cidon, Sachin Katti

Eurosys 2018

Acceptance rate: 16%

**Awarded Best Poster**

### **LHD: Improving Cache Hit Rate by Maximizing Hit Density**

Nathan Beckmann, Haoxian Chen, Asaf Cidon

NSDI 2018

Acceptance rate: 16%

### **Memshare: a Dynamic Multi-tenant Memory Key-value Cache**

Asaf Cidon, Daniel Rushton, Stephen M. Rumble, Ryan Stutsman

Usenix ATC 2017

Acceptance rate: 21%

### **Cliffhanger: Scaling Performance Cliffs in Web Memory Caches**

Asaf Cidon, Assaf Eisenman, Mohammad Alizadeh, Sachin Katti

NSDI 2016

Acceptance rate: 20%

### **Tiered Replication: An Efficient Alternative to Full Cluster Geo-replication**

Asaf Cidon, Robert Escriva, Sachin Katti, Mendel Rosenblum, Emin Gun Sirer

Usenix ATC 2015  
*Acceptance rate: 16%*

**Dynacache: Dynamic Cloud Caching**

**Asaf Cidon**, Assaf Eisenman, Mohammad Alizadeh, Sachin Katti  
HotCloud 2015  
*Acceptance rate: 33% Also appears in: HotStorage 2015*

**Copysets: Reducing the Frequency of Data Loss in Cloud Storage**

**Asaf Cidon**, Ryan Stutsman, Stephen M Rumble, Sachin Katti, John Ousterhout, Mendel Rosenblum  
Usenix ATC 2013  
*Acceptance rate: 14%*  
**Awarded Best Student Paper**

**Flashback: Decoupled Lightweight Wireless Control**

**Asaf Cidon**, Kanthi Nagaraj, Sachin Katti, Pramod Viswanath  
Sigcomm 2012  
*Acceptance rate: 14%*

**MARS: Adaptive Remote Execution for Multi-threaded Mobile Devices**

**Asaf Cidon**, Tomer London, Sachin Katti, Christos Kozyrakis, Mendel Rosenblum  
MobiHeld 2011

**Venus: Verification for Untrusted Cloud Storage**

Alexander Shraer, Christian Cachin, **Asaf Cidon**, Idit Keidar, Yan Michalevsky, Dani Shaket  
CCSW 2010

**PATENTS**

**System and method for electronic messaging threat scanning and detection**

**Asaf Cidon**, Lior Gavish, Michael Perone  
US Patent Application 15/693,367, Filed: July 2017

**System and method for AI-based anti-fraud user training and protection**

**Asaf Cidon**, Lior Gavish, Michael Perone  
US Patent Application 15/693,353, Filed: July 2017

**System and method for AI-based real-time communication fraud detection and prevention**

**Asaf Cidon**, Lior Gavish, Michael Perone  
US Patent Application 15/693,318, Filed: July 2017

**Distrubted encryption and access control scheme in a cloud environment**

**Asaf Cidon**, Israel Cidon, Lior Gavish, Prabandham Madan Gopal, Chandrashekhar Shetty  
US Patent 9373001, June 2016

**Robust restoration of passphrases from partial information**

Israel Cidon, **Asaf Cidon**, Lior Gavish  
US Patent Application 15/077,965, March 2016

**Modification of files within a cloud computing environment**

**Asaf Cidon**, Gopal Madan Prabandham, Israel Cidon, Shetty Chandrashekhar, Lior Gavish, Barak Srour  
US Patent Application 20140019497, January 2014

**Encrypting files within a cloud computing environment**

**Asaf Cidon**, Gopal Madan Prabandham, Israel Cidon, Shetty Chandrashekhar, Lior Gavish, Barak Srour  
US Patent 9262643, December 2012

**System, method and computer readable medium for file management**

**Asaf Cidon**, Gopal Madan Prabandham, Israel Cidon, Shetty Chandrashekhar, Lior Gavish, Barak Srour  
US Patent 8977661, December 2012

**Generating additional content**

Ziv Bar-Yossef, David Kadouch, Michal Levin, Tomer Shmiel, Tal Cohen, David Oren, Adi Mano, Philip A. McDonnell, Eran Ofek, Haran Pilpel, **Asaf Cidon**, Yossi Matias, Marissa Ann Mayer  
US Patent Application 20160026727, June 2011

**Cloud Based Operating and Virtual File System**

**Asaf Cidon**

US Patent 8527549, February 2011

**AWARDS**

SC 2017 Rising Star Award  
Usenix ATC 2013 Best Student Paper  
Leonard J. Shustek Stanford Graduate Fellowship  
Sohnis Promising Scientist Award  
Finalist, Qualcomm Innovation Fellowship  
Technion President's Honors List  
Technion EE Dean's Honors List

**ACADEMIC SERVICE**

**Program Committee:** NSDI 2019, Usenix ATC 2019, NSDI 2020  
**Reviewer:** IEEE TWireless 2015, TMC 2015, ToN 2014

**SELECTED TALKS**

**LHD: Improving Cache Hit Rate by Maximizing Hit Density**

NSDI'18, April 2018

Austin University, June 2018

**Fully Automated Online Spear Phishing Detection**

UC Berkeley, April 2018

New York University, March 2018

Cornell Tech, February 2018

Princeton University, January 2018

Columbia University, December 2017

Harvard University, November 2017

**Memshare: a Dynamic Multi-tenant Memory Key-value Cache**

Usenix ATC'17, July 2017

**SSD is often too reliable: The case for flexible coding**

Stanford University, March 2017

**Cliffhanger: Scaling Performance Cliffs in Web Memory Caches**

NSDI'16, March 2016

Princeton University, June 2016

Cornell Tech, June 2016

**Cache OS: Data Center Dynamic Cache Management**

Facebook's Database Group, October 2015

**Dynacache: Dynamic Cloud Caching**

HotCloud'15 and HotStorage'15, August 2015

**Tiered Replication: A Cost-effective Alternative to Full Cluster Geo-replication**

Usenix ATC'15, August 2015

**Controlling the Frequency of Data Loss in Cloud Storage**

Stanford University Oral Defense, October 2014

**Tiered Replication: Two Plus One Replicas are More Durable than Three**

SEDCL Retreat, June 2014

**Copysets: Reducing the Frequency of Data Loss in Cloud Storage**

Usenix ATC'13, June 2013

**Flashback: Decoupled Lightweight Wireless Control**

Sigcomm'12, September 2012

Technion - Israel Institute of Technology, December 2011

**MinCopysets: Derandomizing Replication in Cloud Storage**

UC Berkeley, September 2012

Technion - Israel Institute of Technology, July 2012

IBM Research Storage Group, July 2012

Facebook HDFS/HBase Team, June 2012

NetApp Advanced Technology Group (ATG), June 2012

**Crossing Device Boundaries with Wireless P2P**

Qualcomm, August 2011

**MARS: Adaptive Remote Execution Scheduler for Multithreaded Mobile Devices**

Mobiheld'11, June 2011

**SELECTED PRESS COVERAGE**

[CNBC](#) [NY Times](#) [SC Magazine](#) [NBC News](#) [Forbes](#) [NBC Business Insider](#) [Dark Reading](#)