

Alex Conway

SENIOR RESEARCHER

397 2nd St, Apt 4, Jersey City, NJ 07302

✉ me@ajhconway.com | 🏠 www.ajhconway.com | 📷 ajhconway | 🎓 Alex Conway

Experience

VMware Research Group

SENIOR RESEARCHER

PALO ALTO, CA

JUN. 2020 - PRESENT

- Creator of and research lead for SplinterDB. SplinterDB is an open-source general purpose key-value store build on theoretically optimal data structures. SplinterDB has been integrated into vSAN 8.0.
- Research in storage systems, filters, hash tables, memory management, external memory data structures and algorithms, succinct data structures, and randomized algorithms.

VMware Research Group

RESEARCH INTERN

PALO ALTO, CA

JUN. 2018 - JUN. 2020

Dell EMC

RESEARCH INTERN

PRINCETON, NJ

MAY 2017 - SEP. 2017

Education

Rutgers University

PH.D. IN COMPUTER SCIENCE

NEW BRUNSWICK, NJ

SEPT. 2015 - OCT. 2020

Princeton University

M.S. IN MATHEMATICS

PRINCETON, NJ

SEPT. 2007 - MAY 2011

Rutgers University

B.S. IN MATHEMATICS

NEW BRUNSWICK, NJ

SEPT. 2003 - MAY 2007

Publications

CONFERENCE PAPERS

Mosaic Pages: Big TLB Reach with Small Pages

ASPLOS

K. GOSAKAN, J. HAN, W. KUSZMAUL, I. MUBAREK, N. MUKHERJEE, K. SRIRAM, G. TAGLIAVINI, E. WEST, M. BENDER, A. BHATTACHARJEE, **A. CONWAY**, M. FARACH-COLTON, J. GANDHI, R. JOHNSON, S. KANNAN, D. PORTER

TO APPEAR 2023

Sharding the State Machine: Automated Modular Reasoning for Complex Concurrent Systems

OSDI

T. HANCE, Y. ZHOU, A. LATTUADA, R. ACHERMANN, **A. CONWAY**, R. STUTSMAN, G. ZELLWEGER, C. HAWBLITZEL, J. HOWELL, B. PARNO

TO APPEAR 2023

SplinterDB and Maplets: Improving the Trade-Offs in LSM Compaction Policy

SIGMOD

A. CONWAY, M. FARACH-COLTON, R. JOHNSON

TO APPEAR 2023

IcebergHT: High Performance PMEM Hash Tables Through Stability and Low Associativity

SIGMOD

M. BENDER, **A. CONWAY**, J. DURIE, M. FARACH-COLTON, W. KUSZMAUL, P. PANDEY, R. JOHNSON

TO APPEAR 2023

Tiny Pointers

SODA

M. BENDER, **A. CONWAY**, M. FARACH-COLTON, W. KUSZMAUL, G. TAGLIAVINI

2023

Online List Labeling: Breaking the $\log^2 n$ Barrier	FOCS
M. BENDER, A. CONWAY , M. FARACH-COLTON, H. KOMLOS, W. KUSZMAUL, N. WEIN	2022
Invited Submission to Special Issue	
BetrFS: A Compleat File System for Commodity SSDs	EUROSYS
Y. JIAO, S. BERTRON, S. PATEL, L. ZELLER, R. BENNETT, N. MUKHERJEE, M. BENDER, M. CONDUCT, A. CONWAY , M. FARACH-COLTON, X. GE, W. JANNEN, R. JOHNSON, D. PORTER, J. YUAN	2022
Paging and the Address-Translation Problem	SPAA
M. BENDER, A. BHATTACHARJEE, A. CONWAY , M. FARACH-COLTON, R. JOHNSON, S. KANNAN, W. KUSZMAUL, N. MUKHERJEE, D. PORTER, G. TAGLIAVINI, J. VOROBYEVA, E. WEST	2021
Vector Quotient Filters: Overcoming the Time/Space Trade-Off in Filter Design	SIGMOD
P. PANDEY, A. CONWAY , J. DURIE, M. BENDER, M. FARACH-COLTON, R. JOHNSON	2021
SplinterDB: Closing the Bandwidth Gap for NVMe Key-Value Stores	ATC
A. CONWAY , A. GUPTA, V. CHIDAMBARAM, M. FARACH-COLTON, R. SPILLANE, A. TAI, R. JOHNSON	2020
How to Copy Files	FAST
Y. ZHAN, A. CONWAY , I. GROOMBRIDGE, Y. JIAO, N. MUKHERJEE, M. BENDER, M. FARACH-COLTON, W. JANNEN, R. JOHNSON, D. PORTER, J. YUAN	2020
Filesystem Aging: It's more Usage than Fullness	HOTSTORAGE
A. CONWAY , E. KNORR, Y. JIAO, M. BENDER, W. JANNEN, R. JOHNSON, D. PORTER, M. FARACH-COLTON	2019
Small Refinements to the DAM Can Have Big Consequences for Data-Structure Design	SPAA
M. BENDER, A. CONWAY , M. FARACH-COLTON, W. JANNEN, Y. JIAO, R. JOHNSON, E. KNORR, S. McALLISTER, N. MUKHERJEE, P. PANDEY, D. PORTER, J., Y. ZHAN	2019
Optimal Ball Recycling	SODA
M. BENDER, J. CHRISTENSEN, A. CONWAY , M. FARACH-COLTON, R. JOHNSON, M. TSAI	2019
Optimal Hashing in External Memory	ICALP
A. CONWAY , M. FARACH-COLTON, P. SHILANE	2018
The Full Path to Full-Path Indexing	FAST
Y. ZHAN, Y. JIAO, A. CONWAY , E. KNORR, M. BENDER, M. FARACH-COLTON, B. JANNEN, D. PORTER, J. YUAN, R. JOHNSON	2018
File Systems Fated for Senescence? Nonsense, Says Science!	FAST
A. CONWAY , A. BAKSHI, Y. JIAO, Y. ZHAN, M. BENDER, W. JANNEN, R. JOHNSON, B. KUSZMAUL, D. PORTER, J. YUAN, M. FARACH-COLTON	2017
The I/O Complexity of Computing Prime Tables	LATIN
M. BENDER, R. CHOWDHURY, A. CONWAY , M. FARACH-COLTON, P. GANAPATHI, R. JOHNSON, S. McCAULEY, B. SIMON, S. SINGH	2016
JOURNAL PAPERS	
External-memory Dictionaries in the Affine and PDAM Models	TOPC
M. BENDER, A. CONWAY , M. FARACH-COLTON, W. JANNEN, Y. JIAO, R. JOHNSON, E. KNORR, S. McALLISTER, N. MUKHERJEE, P. PANDEY, D. PORTER, J. YUAN, Y. ZHAN	2021
Copy-on-Abundant-Write for Nimble File System Clones	TOS
Y. ZHAN, A. CONWAY , Y. JIAO, N. MUKHERJEE, I. GROOMBRIDGE, M. BENDER, M. FARACH-COLTON, W. JANNEN, R. JOHNSON, D. PORTER, J. YUAN	2021

Efficient Directory Mutations in a Full-Path-Indexed File System TOS
Y. ZHAN, Y. JIAO, D. PORTER, **A. CONWAY**, E. KNORR, M. FARACH-COLTON, M. BENDER, J. YUAN,
W. JANNEN, R. JOHNSON 2018

ARTICLES

Reflecting on the First SIAG/ACDA Workshop SINEWS
A. CONWAY, H. MEYERHENKE, B. UÇAR 2022

How to Not Copy Files ;LOGIN:
Y. ZHAN, **A. CONWAY**, N. MUKHERJEE, I. GROOMBRIDGE, M. FARACH-COLTON, R. JOHNSON, Y. JIAO,
M. BENDER, W. JANNEN, D. PORTER, J. YUAN 2020

How to Fragment Your File System ;LOGIN:
A. CONWAY, A. BAKSHI, Y. JIAO, Y. ZHAN, M. BENDER, W. JANNEN, R. JOHNSON, B. KUSZMAUL,
D. PORTER, J. YUAN, M. FARACH-COLTON 2017

Talks

CONFERENCE TALKS

Online List Labeling: Breaking the $\log^2 n$ Barrier DENVER, CO
FOCS NOVEMBER 2022

SplinterDB: Closing the Bandwidth Gap for NVMe Key-Value Stores BOSTON, MA
ATC JULY 2020

How to Copy Files SANTA CLARA, CA
FAST FEBRUARY 2020

Filesystem Aging: It's more Usage than Fullness RENTON, WA
HOTSTORAGE JULY 2019

Optimal Ball Recycling SAN DIEGO, CA
SODA JANUARY 2019

Optimal Hashing in External Memory PRAGUE, CZ
ICALP AUGUST 2018

File Systems Fated for Senescence? Nonsense, Says Science! SANTA CLARA, CA
FAST FEBRUARY 2017

Program Committee Memberships

FAST SANTA CLARA, CA
FEBRUARY 2023

FAST SANTA CLARA, CA
WORK-IN-PROGRESS/POSTER CHAIR FEBRUARY 2022

APOCS VIRTUAL
JANUARY 2022

ACDA VIRTUAL
JULY 2021

ATC VIRTUAL
SUBMISSIONS CHAIR JULY 2021

ALENEX

ALEXANDRIA, VA

JANUARY 2021