

# Alex Conway

PHD CANDIDATE · COMPUTER SCIENCE

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## Education

### Rutgers University

NEW BRUNSWICK, NJ

PH.D. IN COMPUTER SCIENCE

SEPT. 2015 - PRESENT

- Research under advisor Prof. Martín Farach-Colton. Areas of interest include external memory algorithms and storage systems.

### Princeton University

PRINCETON, NJ

M.S. IN MATHEMATICS

SEPT. 2007 - MAY 2011

### Rutgers University

NEW BRUNSWICK, NJ

B.S. IN MATHEMATICS

SEPT. 2003 - MAY 2007

## Publications

### CONFERENCE PAPERS

#### 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

#### 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

### 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

## Experience

### VMware Research Group

PALO ALTO, CA

RESEARCH INTERN

JUN. 2018 - PRESENT

- Research project with Ittai Abraham, Vijay Chidambaram, Martin Farach-Colton, Rob Johnson and Amy Tai, in collaboration with the vSAN product group.
- Designed and implemented SplinterDB, a highly concurrent NVME-optimized key-value store.
- Uses size-tiered  $B^{\epsilon}$ -trees, and the theory of optimal external memory hash tables to achieve theoretic optimality.

### Dell EMC

PRINCETON, NJ

RESEARCH INTERN

MAY 2017 - SEP. 2017

- Research project with Philip Shilane.
- Built a high-performance fingerprint index for deduplicated storage using BOA hash tables, a novel data structure.
- Benchmarks show improvement on the insertion performance over standard LSM-tree-based hash tables, such as the one in use in Dell EMC's Datadomain deduplication system, by a factor of 2-10x.

## Talks

### CONFERENCE TALKS

#### 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

### ALENEX

ALEXANDRIA, VA

JANUARY 2021