

Alex Conway

PHD CANDIDATE · COMPUTER SCIENCE

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

✉ conway@ajhconway.com | 🏠 www.ajhconway.com | 📧 ajhconway | 🗣️ Alex Conway

Education

Rutgers University

PH.D. IN COMPUTER SCIENCE

- Research under advisor Prof. Martín Farach-Colton. Areas of interest include external memory data structures and algorithms, storage systems, file systems and caching algorithms.

NEW BRUNSWICK, NJ

SEPT. 2015 - PRESENT

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

Optimal Ball Recycling

M. BENDER, J. CHRISTENSEN, **A. CONWAY**, M. FARACH-COLTON, R. JOHNSON, M. TSAI

SODA

2019

Optimal Hashing in External Memory

A. CONWAY, M. FARACH-COLTON, P. SHILANE

ICALP

2018

The Full Path to Full-Path Indexing

Y. ZHAN, Y. JIAO, **A. CONWAY**, E. KNORR, M. BENDER, M. FARACH-COLTON, B. JANNEN, D. PORTER, J. YUAN, R. JOHNSON

FAST

2018

File Systems Fated for Senescence? Nonsense, Says Science!

A. CONWAY, A. BAKSHI, Y. JIAO, Y. ZHAN, M. BENDER, W. JANNEN, R. JOHNSON, B. KUSZMAUL, D. PORTER, J. YUAN, M. FARACH-COLTON

FAST

2017

The I/O Complexity of Computing Prime Tables

M. BENDER, R. CHOWDHURY, **A. CONWAY**, M. FARACH-COLTON, P. GANAPATHI, R. JOHNSON, S. McCAULEY, B. SIMON, S. SINGH

LATIN

2016

JOURNAL PAPERS

Efficient Directory Mutations in a Full-Path-Indexed File System

Y. ZHAN, Y. JIAO, D. PORTER, **A. CONWAY**, E. KNORR, M. FARACH-COLTON, M. BENDER, J. YUAN, W. JANNEN, R. JOHNSON

TOS

2018

ARTICLES

How to Fragment Your File System

A. CONWAY, A. BAKSHI, Y. JIAO, Y. ZHAN, M. BENDER, W. JANNEN, R. JOHNSON, B. KUSZMAUL, D. PORTER, J. YUAN, M. FARACH-COLTON

;LOGIN:

2017

Experience

VMware Research Group

RESEARCH INTERN

PALO ALTO, CA

JUN. 2018 - PRESENT

- Research project with Ittai Abraham, Vijay Chidambaram and Rob Johnson in collaboration with the vSAN product group.
- Designed and implemented a novel key-value store, with the goal of being highly concurrent and optimized for NVMe.
- Uses fragmented B^+ -trees, and the theory of optimal external memory hash tables to achieve theoretic optimality

Dell EMC

RESEARCH INTERN

PRINCETON, NJ

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

Optimal Ball Recycling

SODA

SAN DIEGO, CA

JAN. 2019

Optimal Hashing in External Memory

ICALP

PRAGUE, CZ

AUG. 2018

File Systems Fated for Senescence? Nonsense, Says Science!

FAST

SANTA CLARA, CA

FEB. 2017