Christopher McKinlay

CONTACT INFORMATION

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EDUCATION

University of California, Los Angeles (Westwood, CA)
Ph.D., Applied Mathematics — 09/06 to 06/13

Middlebury College (Middlebury, VT)
B.S., Mathematics — 02/97 to 02/01

EMPLOYMENT

Data Science Inc. (Los Angeles, CA)
Director of Engineering — 01/16 to present
Currently running a team of 6 engineers implementing machine learning pipelines and distributed backend services in Scala and Spark.

University of Minnesota, Twin Cities (Minneapolis, MN)
Post Doctoral Fellow, Department of Computer Science and Engineering — 09/13 to 05/15
Developed data and machine learning pipelines to find patterns in microbial communities linked to human health. Learn more about the lab at www.knightslab.org

National Center for Atmospheric Research (Boulder, CO)
Visiting Scientist, Computational Information Systems Laboratory — 06/08 to 09/11
Implemented wavelet compression and coherent vortex detection algorithms for Vapor (www.vapor.ucar.edu), an open-source project for visualizing terascale data sets on commodity hardware.

University of California, Los Angeles (Westwood, CA)
Research Intern, VIGRE Applied Mathematics Internship Program — 06/07 to 08/07
Teaching Assistant, Mathematics Department — 09/06 to 06/13

GRANTS AND AWARDS

Google Cloud Research Award — 07/14
UCLA Dissertation Year Fellowship — 09/11
NSF Analysis Research and Training Grant — 09/09
NSF VIGRE Fellowship — 09/06

PUBLICATIONS

McKinlay, C.; Knights, D.; Vangay, P.; Knight, R.; *Differential Abundance Tests for Microbiome Data*. Nature Methods, In Review.

Knights, D.; Ward, T.; McKinlay, C; Miller, H.; Gonzalez, A.; McDonald, D.; Knight, R.; *Rethinking Enterotypes*. Cell Host and Microbe, Vol. 16, 10/14.

Knights, D.; Huang, H; Vangay, P.: McKinlay, C.; *Multi-omics Analysis of Inflammatory Bowel Diseases*. Immunology Letters, Vol. 10, 08/14

McKinlay, C.; *Hacking OkCupid: Optimizing Visibility in a Bipartite Social Network*. Computer-Supported Cooperative Work and Social Computing, Vol. 16, 02/13

Lord, J.; Rast, M.; McKinlay, C.; Clyne, J.; Mininni, P.; *Wavelet Decomposition of Forced Turbulence: Applicability of the Iterative Donoho-Johnstone Threshold*. Physics of Fluids Vol. 24, 02/12.

Lord, J.; Rast, M.; McKinlay, C.; Clyne, J.; Mininni, P.; *Wavelet Decomposition of Taylor-Green Forced Turbulence: Sensitivity of the incoherent Component Statistics to Threshold Value.* American Geophysical Union, 09/10.

McKinlay, C.; Citro, C.; *Scalable Application of Compressed Linear Operators on GPU Hardware.* 14th SIAM Conference on Parallel Processing for Scientific Computing, 01/10.

McKinlay, C.; *Efficient Algebraic Representations for Throughput-Oriented Algorithms.* Doctoral Dissertation, 06/13

Invited Talks

"How Data Science Leads to 'I do'":
UMN Carlson School of Management (Minneapolis, MN), 02/15

"Inference and Classification in Computational Metagenomics":
CSUN Applied Mathematics Seminar (Northridge, CA), 03/14

"On Hacking OkCupid":
IPAM: Conference on the Mathematics of Social Learning (Los Angeles, CA), 01/14

"L1 and K-medoids for Sparse Clustering of Categorical Data":
UCLA Applied Mathematics Seminar (Los Angeles, CA), 05/13

"Accelerating Separable Tensor Operations with Throughput-Oriented Processors":
SIAM Conference on Computational Science and Engineering (Reno, NV), 02/11

"On Porting VAPOR's Wavelet Compression Utility to Many-core Architectures":
National Center for Atmospheric Research (Boulder, CO), 08/10

"GPU Applications to Large Atmospheric Simulations":
Chinese Academy of Science Supercomputing Center Conference on GPU Solutions to Multi-scale Problems in Science and Engineering (Harbin, China), 07/10

"Matrix Operator Compression on Accelerator Hardware":
Hughes Research Laboratory (Malibu, CA), 10/09

"Wavelet Compression Methods for Coherent Vortex Extraction":
National Center for Atmospheric Research (Boulder, CO), 08/09

Conferences, Workshops and Seminars

Keystone Symposia: Exploiting and Understanding Chemical Biotransformations in the Human Microbiome (Big Sky, MT), 04/14

IPAM: Mathematics of Social Learning (Los Angeles, CA), 01/14

CSCW: Conference on Computer Supported Cooperative Work and Social Computing (San Antonio, TX), 02/13

IPAM: Mathematical and Computational Approaches in High-Throughput Genomics Workshop I: Next-generation Sequencing Technology and Algorithms for Primary Data Analysis (Los Angeles, CA), 10/11

SIAM: Conference on Computational Science and Engineering (Reno, NV), 02/11

VSCSE: Proven Algorithmic Techniques for Many-Core Processors (Los Angeles, CA), 08/10

SIAM: Conference on Parallel Processing for Scientific Computing (Seattle, WA), 01/10

IPAM: Mathematics of Knowledge and Search Engines (Los Angeles, CA), 12/07