

Colin White

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RESEARCH INTERESTS	My work spans machine learning and theoretical computer science. I am particularly interested in automated machine learning (AutoML) and neural architecture search (NAS), both in designing new methods and in steering the field to give reproducible, fair comparisons between methods.
EXPERIENCE	Abacus.AI , San Francisco, CA <i>Head of Research</i> Oct. 2020 – Present <i>Research Scientist</i> May 2019 – Oct. 2020
EDUCATION	Carnegie Mellon University , Pittsburgh, PA <i>Ph.D. in Computer Science</i> Sep. 2014 – Dec. 2018 Advisor: Maria-Florina Balcan Thesis committee: Avrim Blum, Anupam Gupta, Yury Makarychev, and David Woodruff Amherst College , Amherst, MA <i>B.A. in Computer Science and Mathematics</i> Sep. 2010 – May 2014 Graduated <i>Summa Cum Laude</i> GPA: 3.76/4.0
HONORS AND AWARDS	Top 10% of reviewers at NeurIPS 2020 Sep. 2020 Top 50% of reviewers at NeurIPS 2019 Sep. 2019 NDSEG Fellowship Sep. 2014 – Dec. 2018 NeurIPS Student Travel Grant Dec. 2018 Amherst Memorial Fellowship Sep. 2016 – Aug. 2017 CMU Graduate Student Association/Provost Student Travel Grant Sep. 2016 – Aug. 2017 Conference on Learning Theory (COLT) Student Travel Grant May 2017 Heidelberg Laureate Forum, invited as a Young Researcher Sep. 2017 John Woodruff Simpson Fellowship Sep. 2014 – Aug. 2016 Post-Baccalaureate Summer Research Fellowship, Amherst College Sep. 2014 Computer Science Prize, Amherst College May 2014 Henry F. Dunbar Award, Amherst College Swimming and Diving Team May 2014
PREPRINTS	“Local Search is State of the Art for Neural Architecture Search Benchmarks.” <u>C. White, S. Nolen, Y. Savani.</u> In submission, 2020.
JOURNAL PUBLICATIONS	“ k -center Clustering under Perturbation Resilience.” With M. Balcan and N. Haghtalab. Transactions on Algorithms Journal (TALG) 2020. “Small dynamical heights for quadratic polynomials and rational functions.” With R. Benedetto, R. Chen, T. Hyde, and Y. Kovacheva. Experimental Mathematics, 2014.
CONFERENCE PUBLICATIONS	“BANANAS: Bayesian Optimization with Neural Architectures for Neural Architecture Search.” <u>C. White, W. Neiswanger, Y. Savani.</u> AAAI Conference on Artificial Intelligence (AAAI), 2021.

“A Study on Encodings for Neural Architecture Search.”

C. White, W. Neiswanger, S. Nolen, Y. Savani.

Selected for spotlight presentation.

Neural Information Processing Systems (NeurIPS), 2020.

“Intra-Processing Methods for Debiasing Neural Networks.”

Y. Savani, C. White, N. Govindarajulu.

Neural Information Processing Systems (NeurIPS), 2020.

“Robust Communication-Optimal Distributed Clustering Algorithms.”

With P. Awasthi, A. Bakshi, M. Balcan, and D. Woodruff.

International Colloquium on Automata, Languages, and Programming (ICALP) 2019.

“Data-Driven Clustering via Parameterized Lloyd’s Families.”

With M. Balcan and T. Dick.

Selected for spotlight presentation.

Advances in Neural Information Processing Systems (NeurIPS) 2018.

“Learning-Theoretic Foundations of Algorithm Configuration for Combinatorial Partitioning Problems.”

With M. Balcan, V. Nagarajan, and E. Vitercik.

Conference on Learning Theory (COLT) 2017.

“Data Driven Resource Allocation for Distributed Learning.”

With T. Dick, M. Li, V. Pillutla, M. Balcan, and A. Smola.

International Conference on Artificial Intelligence and Statistics (AISTATS) 2017.

“Learning Combinatorial Functions from Pairwise Comparisons.”

With M. Balcan and E. Vitercik.

Conference on Learning Theory (COLT) 2016.

“ k -center Clustering under Perturbation Resilience.”

With M. Balcan and N. Haghtalab.

International Colloquium on Automata, Languages, and Programming (ICALP) 2016.

“Lower Bounds in the Preprocessing and Query Phases of Routing Algorithms.”

C. White.

European Symposium on Algorithms (ESA) 2015.

THESES

“New Aspects of Beyond Worst-Case Analysis.”

C. White.

Ph.D. Thesis, Carnegie Mellon University, 2018.

“Lower Bounds in the Preprocessing and Query Phases of Routing Algorithms.”

C. White.

Undergraduate Thesis, Amherst College, 2014.

WORKSHOP
PUBLICATIONS

“A Study on Encodings for Neural Architecture Search.”

C. White, W. Neiswanger, S. Nolen, Y. Savani.

ICML Workshop on AutoML, 2020.

“Local Search is State of the Art for Neural Architecture Search Benchmarks.”

C. White, S. Nolen, Y. Savani.

ICML Workshop on AutoML, 2020.

“Neural Architecture Search via Bayesian Optimization with a Neural Network Prior.”

C. White, W. Neiswanger, Y. Savani.

NeurIPS Workshop on Meta Learning, 2019.

“Deep Uncertainty Estimation for Model-based Neural Architecture Search.”

C. White, W. Neiswanger, Y. Savani.

NeurIPS Workshop on Bayesian Deep Learning, 2019.

“DECO: Debiasing through Compositional Optimization of Machine Learning Models.”

N. Govindarajulu, C. White.

NeurIPS Workshop on Robust AI in Financial Services, 2019.

“Differentiable Functions for Combining First-order Constraints with Deep Learning via Weighted Proof Tracing.”

N. Govindarajulu, C. White.

NeurIPS Workshop on Knowledge Representation to ML, 2019.

“Data Driven Resource Allocation for Distributed Learning.”

With T. Dick, M. Li, V. Pillutla, M. Balcan, and A. Smola.

AAAI Workshop on Distributed Machine Learning, 2019.

“An Improved Parallel Iterative Algorithm for Stable Matching.”

C. White, E. Lu.

SuperComputing Student Poster Session, 2013.

TALKS

Bananas, Encodings, and Local Search: Insights into Neural Architecture Search.

AutoML Seminar, ELLIS Berlin and Freiburg, Germany (virtual).

Nov. 2020

An Introduction to Neural Architecture Search.

Abacus.AI webinar.

Oct. 2020

Abacus.AI workshop.

Dec. 2019

AICamp webinar.

Jul. 2019

Data-Driven Clustering via Parameterized Lloyd’s Families.

Automated Algorithms Seminar at CMU.

May 2018

Robust Communication-Optimal Distributed Clustering Algorithms.

Theory Lunch Seminar at CMU.

Apr. 2017

k-center Clustering under Perturbation Resilience.

Simons Institute BWCA Workshop.

Nov. 2016

Theory Lunch Seminar at CMU.

Sep. 2016

Dagstuhl Workshop on Learning Theory.

Aug. 2015

Machine Learning Dept. Journal Club Class at CMU.

Sep. 2016

SERVICE

Program Committee Member for ICML, UAI, AAAI

2016, 2019, 2020

Reviewer for JMLR, Algorithmica, TALG, TPAMI, NeurIPS, ICML, AISTATS,

2015 – 2020

AAAI, UAI, FOCS, STOC, ITCS

Doctoral Review Committee Member, CMU

2015 – 2018

A panel of graduate students and faculty who oversee the Ph.D. program

FreeCSD, a social organization for the Ph.D. department at CMU

2015 – 2018

Theory Lunch Organizer, CMU

2016

Ph.D. Admitted Students Open House Organizer, CMU

2016