Curriculum vitae

Thomas Dybdahl Ahle

October 2022

Education

June 2019 Doctor of Philosophy, IT University of Copenhagen.

2019 Master of Arts in Computer Science, University of Oxford.

2017 Master of Science, IT University of Copenhagen, University of Copenhagen.

2013 Bachelor of Arts in Computer Science, University of Oxford.

Publications

"Clustering Embedding Tables, Without First Learning Them". By H Tsang, Thomas Dybdahl Ahle – Submitted, 2022.

"Fast Variance Operator for Uncertainty Rating". By Thomas Dybdahl Ahle, S Karimi, P Tang – Submitted, 2022.

"Tiling with Squares and Packing Dominos in Polynomial Time". By A Aamand, M Abrahamsen, Thomas Dybdahl Ahle, P Rasmussen at Symposium on Computational Geometry (SOCG), 2022.

"Sharp and Simple Bounds for the raw Momentsnbsp;ofnbsp;thenbsp;Binomialnbsp;andnbsp;Poisson Distributions". By Thomas Dybdahl Ahle at Statistics Probability Letters (STAT. PROB. LETT.), 2022.

"Similarity Search with Tensor Core Units". By Thomas Dybdahl Ahle, F Silvestri at International Conference on Similarity Search and Applications (SISAP), 2020.

"On the Problem of p^1 in Locality-Sensitivenbsp;Hashing". By Thomas Dybdahl Ahle at International Conference on Similarity Search and Applications (SISAP), 2020.

"Subsets and Supermajorities: Optimalnbsp;Hashing-based Setnbsp;Similaritynbsp;Search".
By Thomas Dybdahl Ahle, J Knudsen at IEEE Symposium on Foundations of
Computer Science (FOCS), 2020.

"Oblivious Sketching of High-Degreenbsp;Polynomialnbsp;Kernels". By Thomas
Dybdahl Ahle, M Kapralov, J Knudsen, R Pagh, A Velingker, D Woodruff, A
Zandieh at ACM-SIAM Symposium on Discrete Algorithms (SODA), 2020.

"Optimal Las Vegas Localitynbsp;Sensitivenbsp;Datanbsp;Structures". By Thomas
Dybdahl Ahle at IEEE Symposium on Foundations of Computer Science (FOCS),
2017.

"Parameter-free Locality-Sensitive Hashing for Sphericalnbsp;Rangenbsp;Reporting".
By Thomas Dybdahl Ahle, M Aumüller, R Pagh at ACM-SIAM Symposium on
Discrete Algorithms (SODA), 2017.

"On the Complexity of Innernbsp;Productnbsp;Similaritynbsp;Join". By Thomas
Dybdahl Ahle, R Pagh, I Razenshteyn, F Silvestri at ACM Symposium on Prin-
ciples of Database Systems (PODS), 2016.

Awards and Scholarships

Research Travel Award, Stibo-Foundation, 2016.
Given to just two Danish students a year, to collaborate in research abroad.

*Northwestern Europe Regional Programming Contest, 1st, Association for Com-
puting Machinery, 2014.*
With my team Lambdabamserne, becoming the first ever Danish team to qualify
for the ACM wold finals.

Danish National Programming Champion, 1st, Netcompany, 2013, 2014.
Algorithm competition known as "DM i Programmering"

Oxford Computer Science Competition, 1st, University of Oxford, 2013.
For my Numberlink solving software, giving the first fixed parameter polynomial
algorithm for the problem.

Demyship, Magdalen College, 2010, 2011.
A historic scholarship awarded to the top students each year.

Les Trophées du Libre, 1st, Free Software Foundation Europe, 2007.
For my work on the PyChess free software chess suite.

Industry and Employment

Research Scientist at Meta, 2020 - 2022.
I co-lead the Machine Learning Efficiency group, an internal applied research group focusing on scaling AI across the company. During the first year, we came up with a new hashing-based algorithm that reduced the size of the internal recommendation ad systems by 50%. In another project, we designed a new algorithm for inference in Bayesian Neural Networks that allowed the Integrity team to deploy well-calibrated models directly on customer devices.

Chief Machine Learning Officer at SupWiz, 2017 - 2018.
I co-founded an NLP start-up with academics from the University of Copenhagen. At SupWiz, I lead a team of four developing our chatbot software and putting it into production at 3 of the largest Danish IT companies. (Now many more.) Technically we used a combination of classical symbolic AI and modern (at the time) sentence embeddings. In 2019 the chatbot won the most prestigious prize given by Innovation Fund Denmark. I was also responsible for our hiring efforts, interviewing dozens and employing four engineers over five months.

Teaching at IT University of Copenhagen, 2015 - 2019.
In 2019 I co-designed and taught the Parallel and Concurrent Programming course to 140 master students. Earlier years I assisted in various algorithms design classes.

Teaching at University of Copenhagen, 2014.
I assisted in teaching algorithms to more than 200 bachelor students.

Software Engineer at Sophion, Palantir XION, 2010 - 2014.
Through various software engineering jobs, I have gained broad exposure to the different areas of software development. At Sophion Bioscience, I developed internal debugging tools for sifting through gigabytes of data/second on ion channel screening machines. At Palantir, I ported the Metropolis ontological time-series system (now Foundry) to the web, designing data visualization and efficient processing pipelines. At XION, I Developed the most popular Danish TV listings app for Android at the time, based on data scraped (consensually) from hundreds of TV-station websites.

Open Source Projects

Project Owner at PyChess, 2006 - current.
I developed this chess engine and client for Linux desktop, which became the most pupular way to play chess on the Free Internet Chess Server. Through the years I have lead a team of 4-8 developers and designers, as well as numerous other contributers. Such as the volunteers who translated it to more than 35 languages. In 2009 we won Les Trophées du Libre in Paris.

Project Owner at Sunfish, 2012 - current.
A 111 line python chess engine, which is nevertheless 2000+ rating on the online Lichess server. Because of the simplicity and focus on teaching good AI techniques, it has become a popular project on Github with 2400+ stars and nearly 500 forks. Sunfish was referenced in multiple early applications of neural networks to chess.

Media

Jon Lund. "En ulv i fåreklæder", Prosa, May 2021. An interview on the use of SimHash in GoogleFLoC system.

"The Stibo-Foundation supports IT-talents", Stibo, August 2016. The announcement of my winning the Stibo Travel grant.

Bidwell, Jonni. "Python: Sunfish chess engine", Linux Format, January 2016. Article about my Sunfish chess software.

"The National Team at the Programming World Cup", Computerworld, June 2015. Coverage of my teams participation in the ICPC World Finals.

Elkær, Mads. "Denmark's Three Greatest Programmers", Computerworld, October 2013.

Contact

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DBLP List of papers

Google Scholar List of Papers

Linkedin: linkedin.com/in/thomasahle

Github: github.com/thomasahle