

# Stanford

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## Jeffrey Ullman

Stanford Warren Ascherman Professor of Engineering , Emeritus  
Computer Science

### Bio

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#### BIO

Jeff Ullman is the Stanford W. Ascherman Professor of Engineering (Emeritus) in the Department of Computer Science at Stanford and CEO of Gradiance Corp. He received the B.S. degree from Columbia University in 1963 and the PhD from Princeton in 1966. Prior to his appointment at Stanford in 1979, he was a member of the technical staff of Bell Laboratories from 1966-1969, and on the faculty of Princeton University between 1969 and 1979. From 1990-1994, he was chair of the Stanford Computer Science Department. Ullman was elected to the National Academy of Engineering in 1989, the American Academy of Arts and Sciences in 2012, and has held Guggenheim and Einstein Fellowships. He has received the Sigmod Contributions Award (1996), the ACM Karl V. Karlstrom Outstanding Educator Award (1998), the Knuth Prize (2000), the Sigmod E. F. Codd Innovations award (2006), the IEEE von Neumann medal (2010), and the NEC C&C Foundation Prize (2017). He is the author of 16 books, including books on database systems, compilers, automata theory, and algorithms.

#### ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Computer Science

### Teaching

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#### COURSES

##### 2021-22

- Program Analysis and Optimizations: CS 243 (Spr)

## Publications

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### PUBLICATIONS

- **Scaling Cryptographic Techniques by Exploiting Data Sensitivity at a Public Cloud**  
Mehrotra, S., Sharma, S., Ullman, J. D., ACM  
ASSOC COMPUTING MACHINERY.2019: 165–67
- **Partitioned Data Security on Outsourced Sensitive and Non-sensitive Data**  
Mehrotra, S., Sharma, S., Ullman, J. D., Mishra, A., IEEE  
IEEE.2019: 650–61
- **SharesSkew: An algorithm to handle skew for joins in MapReduce** *INFORMATION SYSTEMS*  
Afrati, F. N., Stasinopoulos, N., Ullman, J. D., Vassilakopoulos, A.  
2018; 77: 129–50
- **Computing marginals using MapReduce** *JOURNAL OF COMPUTER AND SYSTEM SCIENCES*  
Afrati, F. N., Sharma, S., Ullman, J. R., Ullman, J. D.  
2018; 94: 98–117
- **Report from the Fourth Workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR'17)** *SIGMOD RECORD*  
Afrati, F. N., Hidders, J., Koutris, P., Sroka, J., Ullman, J.  
2017; 46 (4): 44–48
- **Report from the third workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR' 16)** *SIGMOD RECORD*  
Afrati, F. N., Hidders, J., Re, C., Sroka, J., Ullman, J.  
2017; 46 (2): 43–48
- **Efficient and Private Approximations of Distributed Databases Calculations**  
Derbeko, P., Dolev, S., Gudes, E., Ullman, J. D., Nie, J. Y., Obradovic, Z., Suzumura, T., Ghosh, R., Nambiar, R., Wang, C., Zang, H., BaezaYates, R., Hu, et al  
IEEE.2017: 4487–96
- **Assignment Problems of Different-Sized Inputs in MapReduce** *ACM TRANSACTIONS ON KNOWLEDGE DISCOVERY FROM DATA*  
Afrati, F., Dolev, S., Korach, E., Sharma, S., Ullman, J. D.  
2016; 11 (2)
- **Parallel Skyline Queries** *THEORY OF COMPUTING SYSTEMS*  
Afrati, F. N., Koutris, P., Suciu, D., Ullman, J. D.  
2015; 57 (4): 1008-1037
- **Experiments as Research Validation: Have We Gone Too Far?** *COMMUNICATIONS OF THE ACM*  
Ullman, J. D.  
2015; 58 (9): 37-39
- **Brief Announcement: Assignment of Different-Sized Inputs in MapReduce** *28th International Symposium on Distributed Computing*  
Afrati, F., Dolev, S., Korach, E., Sharma, S., Ullman, J. D.  
SPRINGER-VERLAG BERLIN.2014: 536–537
- **Fuzzy Joins Using MapReduce** *28th IEEE International Conference on Data Engineering (ICDE)*  
Afrati, F. N., Das Sarma, A., Menestrina, D., Parameswaran, A., Ullman, J. D.  
IEEE.2012: 498–509
- **Optimizing Multiway Joins in a Map-Reduce Environment** *IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING*  
Afrati, F. N., Ullman, J. D.  
2011; 23 (9): 1282-1298
- **Cluster Computing, Recursion and Datalog** *1st International Workshop on Datalog Reloaded (Datalog)*  
Afrati, F. N., Borkar, V., Carey, M., Polyzotis, N., Ullman, J. D.  
SPRINGER.2011: 120–144

- **Using views to generate efficient evaluation plans for queries** *JOURNAL OF COMPUTER AND SYSTEM SCIENCES*  
Afrati, F. N., Li, C., Ullman, J. D.  
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- **The Lowell database - Research self assessment** *COMMUNICATIONS OF THE ACM*  
Abiteboul, S., Agrawal, R., Bernstein, P., Carey, M., Ceri, S., Croft, B., DeWitt, D., Franklin, M., Molina, H. G., Gawlick, D., Gray, J., Haas, L., Halevy, et al  
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- **Querying websites using compact skeletons** *20th Symposium on Principles of Database Systems*  
Rajaraman, A., Ullman, J. D.  
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- **A survey of new directions in database systems** *8th International Conference on Database Systems for Advanced Applications*  
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IEEE COMPUTER SOC.2003: 3-3
- **Generating efficient plans for queries using views** *ACM SIGMOD International Conference on Management of Data*  
Afrati, F. N., Li, C., ULLMAN, J. D.  
ASSOC COMPUTING MACHINERY.2001: 319-30
- **Minimizing view sets without losing query-answering power** *8th International Conference on Database Theory (ICDT 2001)*  
Li, C., Bawa, M., ULLMAN, J. D.  
SPRINGER-VERLAG BERLIN.2001: 99-113
- **Finding interesting associations without support pruning** *16th International Conference on Data Engineering (ICDE 2000)*  
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- **Scalable techniques for mining causal structures** *DATA MINING AND KNOWLEDGE DISCOVERY*  
Silverstein, C., Brin, S., Motwani, R., Ullman, J.  
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- **Information integration using logical views** *6th International Conference on Database Theory (ICDT 97)*  
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- **Answering queries using limited external query processors** *15th ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems*  
Levy, A. Y., Rajaraman, A., Ullman, J. D.  
ACADEMIC PRESS INC ELSEVIER SCIENCE.1999: 69-82
- **Computing capabilities of mediators** *1999 ACM SIGMOD International Conference on Management of Data*  
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- **Optimizing large join queries in mediation systems** *7th International Conference on Database Theory (ICDT 99)*  
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- **Information integration using logical views** *6th International Conference on Database Theory*  
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- **Index selection for OLAP** *13th International Conference on Data Engineering*  
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- **Representative objects: Concise representations of semistructured, hierarchical data** *13th International Conference on Data Engineering*  
Nestorov, S., Ullman, J., Wiener, J., Chawathe, S.  
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- **Medmaker: A mediation system based on declarative specifications** *12th IEEE International Conference on Data Engineering*  
Papakonstantinou, Y., GARCIA MOLINA, H., Ullman, J.  
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- **The database approach to knowledge representation** *13th National Conference on Artificial Intelligence (AAAI 96) / 8th Conference on Innovative Applications of Artificial Intelligence (IAAI 96)*  
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  - **BOUNDS ON THE SIZE AND TRANSMISSION RATE OF COMMUNICATIONS PROTOCOLS** *COMPUTERS & MATHEMATICS WITH APPLICATIONS*  
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  - **A SIMPLIFIED UNIVERSAL RELATION ASSUMPTION AND ITS PROPERTIES** *ACM TRANSACTIONS ON DATABASE SYSTEMS*  
Fagin, R., Mendelzon, A. O., ULLMAN, J. D.  
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  - **DEADLOCK-FREE PACKET SWITCHING-NETWORKS** *SIAM JOURNAL ON COMPUTING*  
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  - **EQUIVALENCE OF RELATIONAL DATABASE SCHEMES** *SIAM JOURNAL ON COMPUTING*  
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  - **INFERRING A TREE FROM LOWEST COMMON ANCESTORS WITH AN APPLICATION TO THE OPTIMIZATION OF RELATIONAL EXPRESSIONS** *SIAM JOURNAL ON COMPUTING*  
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● **COMPLEXITY OF LR(K) TESTING** *COMMUNICATIONS OF THE ACM*

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● **LINEAR PRECEDENCE FUNCTIONS FOR WEAK PRECEDENCE GRAMMARS** *INTERNATIONAL JOURNAL OF COMPUTER MATHEMATICS*

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● **TRANSLATIONS ON A CONTEXT FREE GRAMMAR** *INFORMATION AND CONTROL*

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