Vibhore Kumar

Entrepreneur | Inventor | Investor | Researcher | Engineer

Ph.D. in Computer Science from Georgia Institute of Technology, USA

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EXPERIENCE

OneByZero. — *CTO & Co-founder*

Singapore | Pune | Manila | Bangkok | Hanoi | Kuala Lumpur | Jakarta

Jan 2024 - Present

OneByZero is a leader in Data, AI/ML and Generative AI solutions. At OneByZero, I have steered a high-performing, cross-functional team to deliver innovative, scalable AI/Generative AI applications across the Asia-Pacific region. My role involves driving OneByZero's technology strategy, from groundbreaking research to robust implementation, ensuring that each solution empowers businesses to operate more intelligently and efficiently. I have pioneered the adoption of Generative AI, Martech, and hyper-personalization strategies, crafting solutions that leverage modern data platforms to enhance customer engagement and operational agility. By leading projects from experimental model development to full deployment, I enable clients to transition AI from novelty to necessity, harnessing the true power of data-driven transformation.

Unscrambl, Inc. — *CEO & Co-founder (acquired)*

Atlanta | Ankara | Singapore | Pune | Manila

Dec 2013 - Dec 2023

As a founder and CEO of Unscrambl, I was responsible for putting together the founding team, raising venture funding (~USD10 million), expanding the organization from its beginnings in Atlanta, to Ankara, Singapore, Pune and Manila and building a multi-million dollar business.

Unscrambl's product offering - Qbo, empowered non-technical business users to have natural language conversations with their data in collaboration platforms such as Microsoft Teams through an AI-powered data analyst. Leading telcos, banks, insurers and retailers use Qbo to connect to data silos, make insights widely accessible across the organization and unlock value from data to make better, faster decisions. Recognized by Gartner as a Cool Vendor in Analytics & Data Science and with a patented NLP tech, Unscrambl fundamentally transformed the way business users consume data and insights.

AWARDS & ACHIEVEMENTS

Unscrambl - Gartner Cool Vendor in Analytics & Data Science 2022

Test of Time Award, ACM Middleware Conference 2020.

IBM Eminence & Excellence Award 2012.

IBM Research Division Accomplishment Award 2012.

IBM Eminence & Excellence Award 2011.

IBM Outstanding Technical Achievement Award 2010.

Co-invented IBM Streams Processing Language in 2009.

Best Paper Award at IEEE/IFIP Network Operations and Management Symposium, 2008.

Best Paper Award at IEEE Symposium on High Performance Distributed Computing, 2006.

Best Student Paper Award at IEEE International Conference on Autonomic Computing, 2005.

Amongst the top 1.0% out of the 150,000 students that appeared for the IIT-JEE 1998.

Awarded National Talent Scholarship. (1996-1998).

Awarded National Science Talent Scholarship. (1995-1996).

30+
PUBLICATIONS

10+
PATENTS

IBM T. J. Watson Research Center — *Research Staff Member*
Yorktown Heights, New York, USA

May 2008 - Nov 2013

As a key member of the System S/InfoSphere Streams research team, I co-invented the IBM Streams Processing Language and helped design and implement multiple features related to fault-tolerance and orchestration. The commercialization of this research also gave me the opportunity to work with some of the leading clients across the world and be engaged as part of the sales/pre-sales process.

I helped architect and lead the development of a real-time business intelligence and fraud management solution at one of the largest telcos in the world. In 2010, we implemented a highly scalable system that was processing 9B xDRs in real-time. The solution was expanded and implemented at multiple other telcos. I also helped architect a real-time, personalized next-best-offer solution at one of the largest telcos in North America. I played a key role in helping IBM close this multi-million dollar software and services sale.

I also played a key role in establishing a partnership between IBM, Excel-Medical and Emory Healthcare for real-time patient monitoring - specifically early detection of sepsis. I worked with MDs and leading researchers and deployed a prototype that paved the way for expanded work in this area.

IIT BHU Global Alumni Association — *Board Member*
Piscataway, New Jersey, USA

Apr 2009 - Apr 2013 and Jun 2021 - Present

As an early member of the association, I was instrumental in laying out the mission of this organization and helped establish the financial and reporting processes that have withstood the test of time.

IIT BHU Global Alumni Association's mission is to foster better bonds among alumni, students, faculty and staff of the Institute. Its goals are to promote information exchange among alumni, students, faculty and staff of the Institute, to improve infrastructure at the campus of the Institute located at Varanasi, India, to increase teaching and research activities and standard at the Institute and to maintain better media relations and to achieve for the success of alumni, students, faculty and staff.

Georgia Institute of Technology — *Research Assistant*
Atlanta, Georgia, USA

Aug 2003 - May 2008

I conducted research on novel methods for high-throughput, low-latency and self-management in messaging middlewares . I proposed utility based optimization methods to enable self-management in event based systems and won the best student paper award at the prestigious IEEE International Conference on Autonomic Computing 2005. I also proposed the use of CDF to make probabilistic predictions about available bandwidth and won the best paper award at IEEE High Performance Distributed Computing Symposium 2006.

In and around 2006, with machine learning starting to take hold in systems research, I designed a novel state-space based approach for managing large enterprise-scale systems. I used clustering methods to detect homogeneous sub-spaces in a system’s high-dimensional operational state-space and made use of Bayesian networks to model the sub-spaces and avoid SLA violations. I received the Best Paper Award for this work at the IEEE Network Operations and Management Symposium 2008.

Oracle — *Application Developer*
Hyderabad, India

Jul 2002 - Jul 2003

Member of the Oracle Exchange development team, worked on the negotiations module of this B2B solution.

Max-Planck Institute for Informatics — *Summer Intern*
Saarbrucken, Germany

May 2001 - Jul 2001

Worked on designing and implementing range reporting and k-nearest neighbors queries for CGAL. More about Computational Geometry Algorithms Library (CGAL) here - http://www.cgal.org

EDUCATION

Georgia Institute of Technology, Atlanta — *Ph.D.*

Aug 2003 - May 2008

Computer Science with a minor in Operations Research

Indian Institute of Technology (BHU), Varanasi — *B.Tech.*

Jul 1998 - May 2002

Computer Science & Engineering

PATENTS

[1] H. Andrade, B. Gedik, M. Hirzel, V. Kumar, G. Losa, R. Soule, K-L Wu. State Sharing in a Distributed Stream Processing System. US Patent # 8,285,780, October 2012.

[2] H. Andrade, J. Challenger, B. Gedik, M. Hirzel, V. Kumar, R. Soule, K-L Wu. Virtual Execution Environment for Streaming Languages. US Patent # 8,499,292, July 2013.

[3] H. Andrade, B. Gedik, M. Hirzel, V. Kumar, G. Losa, R. Soule, K-L Wu. Data Sharing in a Stream Processing System. US Patent # 8,560,602, October 2013.

[4] E. Bouillet, V. Kumar, L. Mignet, K. Nigam, A. Ranganathan, S. Shah, D. Turaga. Matching an Entry of a List to Data. US Patent # 8,595,244, November 2013.

[5] K. Hildrum, R. Khandekar, V. Kumar, S. Parekh, D. Rajan, J. Wolf, K-L Wu. Reducing the response time of flexible highly data parallel task by assigning task sets using dynamic combined longest processing time scheme. US Patent # 8,595,732, November 2013.

[6] H. Andrade, B. Gedik, V. Kumar, K-L Wu. Managing resource allocation and configuration of model building components of data analysis applications. US Patent # 8,645,966, February 2014.

[7] L. Akoglu, R. M. Khandekar, V. Kumar, S. Parthasarathy, D. Rajan, K-L Wu. Vertex-Proximity Query Processing. US Patent # 8,903,824, December 2014.

[8] K. Hildrum, R. Khandekar, V. Kumar, S. Parekh, D. Rajan, J. Wolf, K-L Wu. Scheduling Parallel Data Tasks. US Patent # 8,930,954, January 2015.

[9] B. Gedik, V. Kumar, G. J. Silva, R. Wagle, K-L Wu. Stream Processing with Runtime Adaptation. US Patent # 9,063,788, June 2015.

[10] B. Gedik, V. Kumar, G. J. Silva, R. Wagle, K-L Wu. Stream Processing with Runtime Adaptation. US Patent # 9,075,662, July 2015.

[11] H. Andrade, B. Gedik, V. Kumar, K-L Wu. Managing resource allocation or configuration parameters of a model building component to build analytic models to increase the utility of data analysis applications. US Patent # 9,244,735, January 2016.

[12] K. Hildrum, R. Khandekar, V. Kumar, S. Parekh, D. Rajan, J. Wolf, K-L Wu. Scheduling Parallel Data Tasks. US Patent # 9,274,836, March 2016.

[13] N. Halim, V. Kumar, K-L Wu, S. Wu. System and Method for Compiler Assisted Parallelization of a Stream Processing Operator. US Patent # 9,367,293, June 2016.

[14] J. Idziorek, V. Kumar, C. Venkatramani, R. Wagle. Dynamic Streaming Data Dispatcher. US Patent # 9,367,501, June 2016.

PUBLICATIONS

Google Scholar Link

Book Chapters

[1] Karsten Schwan, Brian F. Cooper, Greg Eisenhauer, Ada Gavrilovska, Matt Wolf, Hasan Abbasi, Sandip Agarwala, Zhongtang Cai, Vibhore Kumar, Jay Lofstead, Mohamed Mansour, Balasubramanian Seshasayee, and Patrick Widener. *AutoFlow: Autonomic Information Flows for Critical Information Systems*. Autonomic Computing: Concepts, Infrastructure, and Applications, ed. Manish Parashar and Salim Hariri, CRC Press, 2006.

Journals

[2] Sanjay Kumar, Vanish Talwar, Vibhore Kumar, Partha Ranganathan, Karsten Schwan. *vManage: Loosely Coupled Platform and Virtualization Management in Data Centers*. In Cluster Computing Journal 14(3): 259-274 2011.

[3] Sangeetha Seshadri, Vibhore Kumar, Brian F. Cooper and Ling Liu. *A Distributed Stream Query Optimization Framework Through Integrated Planning and Deployment*. IEEE Transactions On Parallel and Distributed Systems (TPDS), 10 Oct. 2008.

[4] Vibhore Kumar, Brian F. Cooper, Zhongtang Cai, Greg Eisenhauer, Karsten Schwan. *Middleware for Enterprise Scale Data Stream Management using Utility-Driven Self-Adaptive Information Flows*. Cluster Computing Journal, Volume 10, Number 4 / December 2007.

[5] Zhongtang Cai, Vibhore Kumar, Karsten Schwan. *IQ-Paths: Predictably High Performance Data Streams across Dynamic Network Overlays*. Journal of Grid Computing, Volume 5, Number 2/ June 2007.

[6] Zhongtang Cai, Greg Eisenhauer, Qi He, Vibhore Kumar, Karsten Schwan, Matthew Wolf. *IQ-Services: Network-Aware Middleware for Interactive Large-Data Applications*. Special Issue of Concurrency & Computation: Practice and Experience Journal, (CPE), 2004.

Conferences

[7] Leman Akoglu, Rohit Khandekar, Vibhore Kumar, Srinivasan Parthasarathy, Deepak Rajan, Kun-Lung Wu. Fast Nearest Neighbor Search on Large Time-Evolving Graphs. In ECML/PKDD, France, 2014.

[8] Gabriela Jacques-Silva, Bugra Gedik, Rohit Wagle, Kun-Lung Wu, Vibhore Kumar. Building User-defined Runtime Adaptation Routines for Stream Processing Applications. In Very Large Data Bases Conference (VLDB), Turkey, 2012.

[9] Eric Bouillet, Ravi Kothari, Vibhore Kumar, Laurent Mignet, Senthil Nathan, Anand Ranganathan, Deepak S. Turaga, Octavian Udrea, Olivier Verscheure.Processing 6 billion CDRs/day: from research to production (experience report). In 6th ACM International Conference on Distributed Event-Based Systems, Germany, 2012.

[10] Sai Wu, Vibhore Kumar, K-L Wu, Beng Chin Ooi. Parallelizing Stateful Operators in a Distributed Stream Processing System: How to Parallelize, Should You Parallelize and How Much Should You Parallelize? In 6th ACM International Conference on Distributed Event-Based Systems, Germany, 2012.

[11] Giuliano Losa, Vibhore Kumar, Henrique Andrade, Bugra Gedik, Martin Hirzel, Robert Soule, Kun-Lung Wu. Language and System Support for Efficient State Sharing in Distributed Stream Processing Systems. In 6th ACM International Conference on Distributed Event-Based Systems, Germany, 2012.

[12] Joel Wolf, Deepak Rajan, Kirsten Hildrum, Rohit Khandekar, Vibhore Kumar, Sujay Parekh, Kun-Lung Wu, Andrey Balmin. Flexible MapReduce Scheduling. IEEE Communications Society, MMTC E-Letter, Vol. 6, No. 4, April, 2011.

[13] Joel Wolf, Deepak Rajan, Kirsten Hildrum, Rohit Khandekar, Vibhore Kumar, Sujay Parekh, Kun-Lung Wu, Andrey Balmin. FLEX: A Slot Allocation Scheduling Optimizer for MapReduce Workloads. In ACM/IFIP/Usenix 11th International Middleware Conference, India, 2010.

[14] Vibhore Kumar, Henrique Andrade, Buğra Gedik, and Kun-Lung Wu. DEDUCE: At the Intersection of MapReduce and Stream Processing. In International Conference on Extending Database Technology (EDBT), Switzerland, 2010.

[15] Robert Soulé, Martin Hirzel, Robert Grimm, Buğra Gedik, Henrique Andrade, Vibhore Kumar, and Kun-Lung Wu. A Universal Calculus for Stream Processing Languages. In European Symposium on Programming (ESOP), Cyprus, 2010.

[16] Sanjay Kumar, Vanish Talwar, Vibhore Kumar, Partha Ranganathan, Karsten Schwan. *vManage: Loosely Coupled Platform and Virtualization Management in Data Centers*. 6th International Conference on Autonomic Computing & Communications (ICAC), Barcelona, Spain, 2009.

[17] Vibhore Kumar, Karsten Schwan, Subu Iyer, Yuan Chen, Akhil Sahai. *The State-Space Approach to SLA-based Management*. IEEE/IFIP Network Operations & Management Symposium (NOMS), Brazil, 2008. **Best paper award.**

[18] Sangeetha Seshadri, Bhuvan Bamba, Brian F. Cooper, Vibhore Kumar, Ling Liu, Karsten Schwan and Gong Zhang (in alphabetical order). *Grouping Distributed Stream Query Services by Operator Similarity and Network Locality*. IEEE Congress on Services (SCC), Honolulu, Hawaii, USA, July 2008.

[19] Vibhore Kumar, Brian F. Cooper, Greg Eisenhauer, Karsten Schwan. *iManage: Policy-Driven Self-Management for Enterprise-Scale Systems*. ACM/IFIP/USENIX 8th International Middleware Conference, California, USA, 2007.

[20] Sangeetha Seshadri, Vibhore Kumar, Brian F. Cooper, Ling Liu. *Optimizing Multiple Queries in Distributed Stream Systems Using Hierarchical Network Partitions.* IEEE International Parallel & Distributed Processing Symposium (IPDPS) 2007.

[21] Zhongtang Cai, Yuan Chen, Vibhore Kumar, Dejan Milojicic, Karsten Schwan. *Automated Availability Management Driven by Business Policies*. 10th IFIP/IEEE Symposium on Integrated Management (IM) 2007.

[22] Vibhore Kumar, Zhongtang Cai, Brian F. Cooper, Greg Eisenhauer, Karsten Schwan, Mohamed Mansour, Balasubramanian Seshasayee, Patrick Widener. *Implementing Diverse Messaging Models with Self-Managing Properties using iFLOW*. 3rd IEEE International Conference on Autonomic Computing (ICAC 2006), Dublin, Ireland.

[23] Zhongtang Cai, Vibhore Kumar, Brian F. Cooper, Greg Eisenhauer, Karsten Schwan, Robert E. Strom. *Utility- Driven Management of Availability in Enterprise-Scale Information Flows*. ACM/IFIP/USENIX 7th International Middleware Conference, Melbourne, Australia, 2006.

[24] Zhongtang Cai, Vibhore Kumar, Karsten Schwan. *Self-Regulating Data Streams for Predictable High Performance across Dynamic Network Overlay*. 15th IEEE International Symposium on High-Performance Distributed Computing (HPDC 2006), Paris, France. **Best paper award**.

[25] Vibhore Kumar, Brian F. Cooper, Zhongtang Cai, Greg Eisenhauer, Karsten Schwan. *Resource-Aware Distributed Stream Management using Dynamic Overlays*. 25th IEEE International Conference on Distributed Computing Systems (ICDCS-2005), Columbus, Ohio, USA.

[26] Vibhore Kumar, Brian F. Cooper, Karsten Schwan. *Distributed Stream Management using Utility-Driven Self- Adaptive Middleware*. 2nd IEEE International Conference on Autonomic Computing (ICAC 2005), Seattle, Washington, USA. **Best student paper award**.

[27] David M Chess, Vibhore Kumar, Alla Segal, Ian Whalley. *Availability-Aware Self-Configuration in Autonomic Systems*. 15th IFIP/IEEE Distributed Systems: Operations and Management (DSOM 2004), Davis, California, USA. *Workshops*

[28] Vibhore Kumar, Brian F. Cooper, Greg Eisenhauer, Karsten Schwan. *Enabling Policy-Driven Self-Management for Enterprise-Scale Systems*. First International Workshop on Policy-Based Autonomic Computing, in conjunction with ICAC 2007. **Best paper award**.

[29] Sangeetha Seshadri, Vibhore Kumar, Brian F. Cooper. *Optimizing Multiple Queries in Distributed Data Stream Systems*. 2nd IEEE International Workshop on Networking Meets Database (NetDB), in conjunction with ICDE 2006.

[30] Vibhore Kumar, Brian F. Cooper, Shamkant B Navathe. *Predictive Filtering: A Learning-Based Approach to Data Stream Filtering*. International Workshop on Data Management for Sensor Networks in conjunction with VLDB-2004. Toronto, Canada.

[31] Zhongtang Cai, Greg Eisenhauer, Qi He, Vibhore Kumar, Karsten Schwan, Matthew Wolf. *IQ-Services: Network-Aware Middleware for Interactive Large-Data Applications*. 2nd International Workshop on Middleware & Grid Computing, MGC-2004. Toronto, Canada.

Demonstrations

[32] Vibhore Kumar, Brian F. Cooper, Greg Eisenhauer, Srihari Govindharaj, Chaitanya Karlekar, Mohamed Mansour, Karsten Schwan, Sangeetha Seshadri, Balasubramanian Seshasayee. *Policy-Driven Autonomic Management in Enterprise-Scale Information Flows*. 4th IEEE International Conference on Autonomic Computing ICAC-2007.