



Calhoun: The NPS Institutional Archive

History of NPS

Biographies

2013-07-26

Dr. David K. Hsaio: a biography

Hsaio, David K.

Monterey, California. Naval Postgraduate School

<http://hdl.handle.net/10945/36413>



Calhoun is a project of the Dudley Knox Library at NPS, furthering the precepts and goals of open government and government transparency. All information contained herein has been approved for release by the NPS Public Affairs Officer.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>

/people/faculty/hsiao/

JAN FEB MAY [Close](#)

1996 1997 2000 [Help](#)

17



Dr. David K. Hsaio

Computer Science Department

Laboratory for Database Systems Research

- *Naval Postgraduate School*
- *Monterey, Ca 93944-2108*
- *Phone: (408) 656-2168*
- *Fax No.: (408) 6562814*
- *Email: hsiao@cs.nps.navy.mil*

Educational Background

- *1968 Ph.D., Computer and Information Sciences, University of Pennsylvania*
- *1964 Master of Science, Mathematics, Miami University*
- *1961 Bachelor of Arts, Mathematics, Miami University*

Resume of Career

- **July 1982 to Present**
Professor, Department of Computer Science, Naval Postgraduate School(NPS), Monterey, CA (tenured in 1983).
- **Sept 1994 to July 1995**
Wilson T.S. Wang Distinguished International Professor, Computer Science Department, Chinese University of Hong Kong
- **July 1982 to Sept 1984**
Chairman and Professor, Department of Computer Science, NPS, Monterey, CA
- **Oct. 1978 to June 1982**
Professor, Department of Computer and Information Science, Ohio State University (OSU), Columbus, Ohio
- **Sept 1979 to May 1980**
Visiting Professor, Laboratory for Computer Science and Sloan School of Management, Massachusetts Institute of Technology (MIT)
- **Sept 1979 to May 1980**
Distinguished Visiting Scientist, Computer Corporation Of America (CCA)
- **Sept 1972 to Sept 1978**
Associate Professor, Department of Computer and Information Science, OSU
- **June 1976 to Aug. 1976**
Faculty Associate, Computer Science Department, IBM Research Laboratory, San Jose, CA

PROFESSIONAL SOCIETIES

Member (1983 - 1990), Computer Science Editorial Board, World Scientific Publishing.

Editor (1983-1986), Journal of VLSI and Computer Systems, Computer Science Press.

Association of Computing Machinery (ACM):

Member-at-Large of the ACM Council (1980-1982), an elected position

Member of Editorial Committee (1976-1981)

Founder and first Editor-in-Chief of the ACM Transactions on Database Systems (TODS), a quarterly journal (1976-1981)

Member, Governing Board of the ACM SIGMOD (1976-1978)

Member, Program Committee of the ACM SIGMOD (1983)

Received a Service Award for the work done for TODS

Computer Society of the Institute for Electrical and Electronical Engineers (IEEE):

An IEEE Fellow (elected in 1989)

Member, Governing Board (1976-1978)

Member, Publication Board (1975-1976); (1978-1979)

Chairman and founder of the Technical Committee on Data Base Engineering (1975-1977)

Member, Nomination Committee of Computer Society Officers (1977-1978)

Received a Certification of Appreciation and an Honor-Roll Award for the work on Data Base Engineering, now called Technical Committee on Data Engineering

Speaker for the Distinguished Visitors Program (1979-1981) and Received a Certification for the work done in the program

International Federation of Information Processing (IFIP):

Member of the database research group known as Working Group 2.6 (1976 - 1995);

Chairman-elect for the WG2.6 for three years (1992-1995)

Member of the Digital System Design Group, Working Group 10.3 (1978 -1983)

Member of the database security research group, Working Group 11.3 (1987 - 1995)

The VLDB Endowment:

Co-founder, past President, and present Trustee (term ends in 1993)

General Conference Chair of The 1st International Conference on Very Large Data Bases ('75 VLDB Conference),

Framingham, MA; and U.S. Conference Chair of The 17th International Conference on Very Large Data Bases ('91 VLDB Conference), Barcelona, Spain
Co-founder and past chairman of the Publication Board of the VLDB Journal, a quarterly scholarly publication beginning in September 1992
Co-founder and past chairman of the Tutorial Board of the VLDB Tutorials, a series of tutorials on database technology and research
Member of the Nomination Committee for New Trustees, 1991- 1992.

Ph.D DISSERTATIONS SUPERVISED

- *Smith, Diane P., "An Approach to Data Description and Conversion," 1971. (She is the Manager of Database Systems Research at Xerox Information Systems," Cambridge, MA)*
 - *Baum, Richard I., "The Architectural Design of a Secure Data Base Management System," 1975. (He is an IBM Fellow at the IBM Poughkeepsie Lab, New York.)*
 - *Harston, H. Rex., "Language for Specifying Protection Requirements in Data Base Systems--A Semantic Model," 1975. (He is a Professor at the Virginia Polytechnic Institute and State University.)*
 - *McCauley, Edwin J., III, "A Model for Data Secure Systems," 1975. (He is a member of the technical staff at Tandem Computers.)*
 - *Kannan, Krishnamurthi, "Design and Performance of a Data Base Computer," 1977. (He was a manager at IBM Thomas J. Watson Research Center.)*
 - *Banerjee, Jayanata, "Performance Analysis and Design Methodology for Implementing Database Systems on New Database Machines", 1979. (He is technical manager at DEC.)*
 - *Menon, Janishankar, "Design and Analysis of a Multi-backend Database System for Performance Improvement, Functionality Expansion and Capacity Growth," 1981. (He is with the IBM Almaden Research Center, San Jose, CA.)*
 - *Strawser, Paula, "A Methodology for Benchmarking Relational Database Machines," 1984. (She is on the technical staff of the U.S. Naval Weapons Center, China Lake, CA.)*
 - *Demurjian, Steven A., "The Multi-Lingual Database System - A Paradigm and Testbed for the Investigation of Data-Model Transformations, Data-Language Translations and Data-Base Semantics," 1987. (He is a tenured Associate Professor at the University of Connecticut, Storrs, CT.)*
-

M.S. and HONOR THESES SUPERVISED

Over 82 theses supervised - of which 9 were at OSU, 11 at Penn and 62 at NPS. The lists of theses supervised at NPS is available on request.

PUBLICATION LISTING

The following is a complete listing of Dr. Hsiao's published works, research, and other reference materials. For a copy of

or a question about any of these documents, please contact him by email.

BOOKS WRITTEN AND EDITED:

Textbook:

Systems Programming - Concepts of Operating and Data Base Systems, Addison-Wesley Publishing Company, 1975, 328 pages. (Now, out of print; The Japanese translation was published in Japan, 1980.)

Monograph:

Computer Security, coauthored with Stuart E. Madnick of MIT and Douglas S. Kerr of Ohio State University in the ACM Monograph Series, Academic Press, 1979, 299 pages. (The Russian translation was published in Soviet Union, 1982.)

Paperback:

Collected Readings on a Database Computer (DBC), editor and contributor, a collection of eight published and one unpublished papers edited by Hsiao, forwarded by Borgerson and Haynes and prefaced by Hsiao and Champine, Ohio State University, first edition, 1979, 130 pages; second edition 1980, 196 pages.

Hardcover:

Advanced Database Machine Architecture, editor and contributor, a collection of eleven articles edited by Hsiao, Prentice-Hall, 1983, 384 pages.

Monograph:

Design Analysis and Performance Evaluation Methodologies for Database Computers, coauthored with Steven Demurjian of Ohio State University and Roger Marshall of Loyola College, Prentice-Hall, 1987, 320 pages.

PUBLISHED PAPERS (not including technical reports)

Journal Papers

- Hsiao, David K. and Harary, Frank, "A Formal System for Information Retrieval from Files," *Communications of ACM*, 13, 2, February 1970; *Corrigenda, Communications of ACM*, 13, 3, March 1970.
- Hsiao, David K., "A Generalized Record Organization," *IEEE Transactions on Computers*, C-20, 12, December 1971, pp. 1490-1495.
- Baum, R. I. and Hsiao, David K., "Data Base Computers - A Step Towards Data Utilities," *IEEE Transactions on Computers*, C-25, 12, December 1976, pp. 1254-1259.
- Banerjee, J., Baum, R., and Hsiao, David K., "Concepts and Capabilities of a Database Computer," *ACM Transactions on Database Systems (TODS)*, 3, 4, December 1978, pp. 347-384.
- Hsiao, David K., "Database Machines are Coming; Database Machines are Coming! - The Guest Editor's Introduction," *Computer*, 11, 3, 1979, pp. 7-9. It is also included in the tutorial volume, *Parallel Architectures for Database Systems*, (Editors: Hurson, Miller, and Pakzad), *IEEE Computer Society Press*, 1989.
- Banerjee, J. and Hsiao, David K., "DBC - A Database Computer for Very Large Databases," *IEEE Transactions on Computers*, C-28, 6, 1979. As a summary of our database computer work in the 70's, it is also included in the tutorial volume, *Parallel Architectures for Database Systems*, (Editors: Hurson, Miller, and Pakzad), *IEEE Computer Society Press*, 1989.
- Hsiao, David K., Kerr, D. S. and Nee, C. J., "Database Access Control in the Presence of Context Dependent Protection Requirements," *IEEE Transactions on Software Engineering*, SE-6, 4, 1979.
- Banerjee, J., Hsiao, David K. and Ng, F., "Database Transformation, Query Translation and Performance Analysis of a New Database Computer in Supporting Hierarchical Database Management," *IEEE Transactions on Software Engineering*, SE-6, 1, 1980.
- DeWitt, D., Friedland, D., Hsiao, David K. and Menon, J., "A Taxonomy of Parallel Sorting," *ACM Computing Surveys*, 16, 3, 1984, pp. 287-318. (The Japanese translation of the article appeared in a special issue of *bit*, January 1986.)
- Demurjian, S. and Hsiao, David K., "Towards a Better Understanding of Data Models through the Multilingual Database System," *IEEE Transactions on Software Engineering*, SE-14, 7, 1988.
- Hsiao, David K. and Kamel, M. N., "Heterogeneous Databases: Proliferations, Issues and Solutions," *IEEE*

- Transactions on Knowledge and Data Engineering, KDE-1, 1, 1989. (This article sets the research issues in heterogeneous databases and systems for the 90's. Some approaches to a solution to these issues are characterized and outlined.)*
- Hsiao, David K., "A Parallel, Scalable, and Microprocessor-Based Database Computer for Performance Gains and Capacity Growth," *IEEE MICRO*, December 1991. (As a summary of our new database computer work in the 80's).
 - Hsiao, David K., "Federated Databases and Systems - Part I: A Tutorial on their Data Sharing," *International Journal on Very Large Data Bases (VLDB Journal)*, 1, 1, June 1992. (An earlier version on this new research thrust for the 90's is included in the tutorial proceedings of the 1990 VLDB Conference).
 - Hsiao, David K., "Federated Databases and Systems - Part II: A Tutorial on their Resource Consolidation," *International Journal on Very Large Data Bases (VLDB Journal)*, 1, 2, October 1992.

PAPERS as CHAPTERS of BOOKS

- Menon, J. and Hsiao, David K., "Design and Analysis of Join Operations of Database Machines," (Chapter 8), *Advanced Database Machine Architecture*, Prentice-Hall, 1983, pp. 203-255.
- Hsiao, David K., Kerr, D. S., Orooji, A., Shi, Z. and Strawser, P., "The Implementation of a Multibackend Database System (MDBS): Part I - An Exercise in Database Software Engineering," (Chapter 10), *Advanced Database Machine Architecture*, Prentice-Hall, 1983, pp. 300-326.
- He, X., Higashida, M., Kerr, D. S. Orooji, A., Shi, Z-Z, Strawser, P., and Hsiao, David K. "The Implementation of a Multibackend Database System (MDBS): Part II - The Design of a Prototype MDBS," (Chapter 12), *Advanced Database Machine Architecture*, Prentice-Hall, 1983, pp. 327-385.
- Bogdanowicz, R., Crocker, M., Hsiao, David K., Ryder, C., Stone, V., Strawser, P., "Experiments in Benchmarking Relational Database Machines," *Database Machines*, (Editors: Leilich and Missikoff), Springer-Verlag, 1983, pp. 106-134.
- Boyne, R. D., Hsiao, D. K., Kerr, D. S., and Orooji, A., "A Message-Oriented Implementation of a Multibackend Database System (MDBS)," *Database Machines*, (Editors: Leilich and Missikoff), Springer-Verlag, 1983, pp. 242-266.
- Hsiao, David K., "Future Database Machine Architectures," in Chapter 2 of *New Directions for Database Systems*, (Editors: Ariav, and Clifford), Ablex Publishing Corporation, 1986, pp. 13-17.
- Hsiao, David K., "Database Security Course Module," *Database Security: Status and Prospects*, (Editor, C. E. Landwehr), North-Holland, 1988, pp. 269-301.
- Hsiao, David K., "Discussion Notes and Revised Question List," *Database Security: Status and Prospects*, (Editor, C. E. Landwehr), North-Holland, 1988, pp. 303-330.
- Hoppenstand, G. S., and Hsiao, David K., "Secure Access Control with High Access Precision: An Efficient Approach to Multilevel Security," *Database Security, II: Status and Prospects*, (Editor, C. E. Landwehr), North-Holland, 1989, pp. 167-176.
- Hsiao, David K., Kohler, M. J., Stround, S. W., "Query Modifications as a Means of Controlling Accesses to Multilevel Secure Databases," *Database Security, IV: Status and Prospects*, (Editors: S. Jajodia and C. E. Landwehr), North-Holland, 1991.
- Hsiao, David K., "Databases and Database Systems in the 21st Century," (Chapter 19), *Very Large Scale Computation in the 21st Century*, (Editor: J. P. Mesirov), SIAM, 1991, pp. 297-316. (The same paper is included in the Proceedings of the Symposium on Very Large Scale Computation, October 1-3, 1990, Thinking Machines Corporation.)
- Hsiao, David K., "From DBC to MDBS - A Research Progression in Database Machine Research," *Emerging Trends in Database and Knowledge-Base Machines*, (Editors: M. Abdelguerfi and S. Lavington) IEEE Computer Society Press, 1995.
- Hsiao, David K., "A Note about the Paper entitled 'A Formal System for Information Retrieval from Files'," *Great Papers in Computer Science*, (Editor: Philip Laplante), West Publishing, Amesbury, MA, 1995.
- Hsiao, David K., "Supercomputers built with Microprocessors vs. Supercomputers built without Microprocessors," *Encyclopedia of Microcomputers*, Marcel Dekker, New York, 1995.

INVITED PAPERS

- Hsiao, David K., "Logical Access Control Mechanisms in Computer Systems," *Proceedings of Conference on Secure Data Sharing, ONR/NSRDC, Washington, D.C., July 1973.*
- Baum, R. I. and Hsiao, David K., "A Data Secure Computer Architecture," *Proceedings of Spring COMPCON 76, San Francisco, California, IEEE Computer Society Press, February 1976.*
- Hsiao, David K. and Baum, R. I., "Information Secure Systems," *Advances in Computers, V. 14, Academic Press, 1976, pp. 231-272.*
- Hsiao, David K., "Data Base Computer - Why and How," *Data Base Engineering, IEEE Computer Society Press, 1, 2, June 1977, pp. 4-7.*
- Hsiao, David K., "Future Database Machines," *Future Systems, Infotect State of the Art Report, November 1977, (U.S. distributors: Auerbach Publisher, Ltd.), pp. 307-330.*
- Hsiao, David K., "Computer Security and Privacy," *Naval Research Review, Vol. XXXI, #1, January 1978, pp. 21-26, Office of Naval Research.*
- Hsiao, David K., "The Architecture of a Database Computer--A Summary," *Proceedings of Data Base Management Systems Workshop, July 5-7, 1978, Atlanta, Georgia; U.S. Army Computer Systems Command.*
- Hsiao, David K., "TODS - The First Three Years (1976-1978)," *ACM Transactions on Database Systems, 5, 4, 1980, pp. 385-408, ACM Press.*
- Hsiao, David K., "Data Base Computers," *Advances in Computers, V. 19, Academic Press, 1980, pp. 1-64.*
- Hsiao, David K., "Laboratory for Database Systems Research," *Database Engineering, IEEE Computer Society Press, 4, 3, 1981.*
- Hsiao, David K., "Will the Real VLDB Conference Please Stand Up?" *The SIGMOD Record, 12, 3, 1982, pp. 8-14, ACM Press.*
- Hsiao, David K., "Social Implications of Advanced Computer and Communication Technologies," *Proceedings of the Fifth International Discoveries Symposium, Columbus, Ohio, May 10-14, 1982, Ohio State University Press.*
- Hsiao, David K., "Database Machines - Past, Present and Future," *Proceedings of the Tutorial and Review Series, Continuing Education Institute, Woodland Hills, CA, 1985 and 1986. (It consists of 199 transparencies.)*
- Demurjian, S. A., Hsiao, D. K. and Strawser, P. R., "Design Analysis and Performance Evaluation Methodologies for Database Computers," *Advances in Computers, v.25, Academic Press, 1986, pp. 101-212.*
- Hsiao, David K., "Super Database Computers: Hardware and Software Solutions for Efficient Processing of Very Large Databases," *Proceedings of the IFIP Congress'86, Dublin, Ireland, Sept. 1986, IFIP Press.*
- Hsiao, David K., "Database Systems as Controllers, Managers and Linguists - A Study of the Relationship of Database and Operating Systems," *Proceedings of the Third International Conference on Data Engineering, IEEE Computer Society Press, February 1987.*
- Hsiao, David K., "Databases and Database Systems in the 21st Century," *Proceedings of Very Large Scale Computing (VLSC-21) Symposium, Cape Cod, MA, October 1-3, 1990, The Thinking Machines Corporation, Cambridge, MA. (This paper is republished in 1991 as a chapter of a book by SIAM with the same title.)*
- Hsiao, David K., "Federated Databases and Systems - A Tutorial and Review of Database Research," *Proceedings of the Tutorial Notes of the International Conference on Very Large Data Bases ('90 VLDB Conference), Brisbane, Australia, August 1990. It is also included in the Proceedings of the Database Tutorial Series, Beijing Information Technology Institute, Beijing, China, November 1990. (It consists of 79 transparencies.)*
- Hsiao, David K., "Text-Retrieval Computers - A Tutorial and Review of Database Technology," *Proceedings of the Database Tutorial Series, Beijing Information Technology Institute, Beijing, China, November 1990. (It consists of 84 transparencies.)*
- Hsiao, David K., "The Object-Oriented Database Management - A Tutorial and Review of Database Experimentation," *Proceedings of the Database Tutorial Series, Beijing Information Technology Institute, Beijing, China, November 1990. (It consists of 105 transparencies.)*
- Hsiao, David K., "An Object-Oriented Approach to Security Policies and their Access Controls for Database Management," *Proceedings of the Second Far-East Workshop on Future Database Systems, Kyoto, Japan, April 26-28, 1992.*

For more information regarding future research interests, thesis research, or just to chat, please attempt to reach me by way of Email.