

## Short Vita – March 2006

Jerry Potter, Professor Emeritus  
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Jerry Potter received his Bachelors degree from the University of Iowa, his Masters from Stevens Institute and his PhD from the University of Wisconsin, Madison. His area of concentration was Artificial Intelligence. His dissertation was in image segmentation. His minor was in natural language processing.

He has worked at IDA's Supercomputing Research Center, Goodyear Aerospace, Xerox Research, and Bell Telephone Laboratories. He was a Professor of Computer Science at Kent State University. While at Goodyear, he was involved in software development (programmer and management) for the STARAN, ASPRO and MPP SIMD computers. While at the Supercomputing Research Center, he performed research on the Connection Machine for 1.5 years. He has been funded by the Naval Ocean Systems Center (NOSC), the Office of Naval Research (ONR), the Naval Surface Weapon Center (NSWC), NASA and AFRL.

While at Kent State, he taught courses in artificial intelligence, expert systems, programming languages, parallel programming, associative computing, assembly language, database, graphics, image processing, C++, Visual Basic, compilers, algorithms, computer architecture, etc.

His research interests include the continuing development of an associative calculus, an associative computing programming methodology, voice based computing, associative information retrieval, knowledge discovery and databases; the development and integration of associative computers with other architectures; the development of techniques for compilation, natural language and artificial intelligence processing on massively parallel computers; and the development of techniques for the introduction of problem solving and programming skills at the high school level.

### Recent research activities:

Dr. Potter has been active developing and implementing an Associative Computing Methodology for general purpose programming. Most recently he has been developing techniques to improve voice based Plain English command recognition rates. He has also published several papers with colleagues defining the limits of the von Neumann programming paradigm. He has been active in developing voice based interactive operating systems and multimedia browsers. In the late 90s he was supported by AFRL to do research into knowledge extraction and the development of data mining on massively parallel computers.

His research has resulted in several associative languages (ASC, ACE, VACE and Plain English) incorporating constructs to exploit associative search and dynamic memory allocation for real time interactive parallel computing. He has published a "Frontiers of Computer Science" research monograph "ASSOCIATIVE COMPUTING" (Plenum Publishers, February 1992) on his work in associative computing. He was awarded an "Ohio Innovator Award" in 1987 for his research on parallel OPS5 and associative computing. He has had support from NOSC and NASA for the investigation of Heterogeneous Associative Computing.

Selected Research Publications:

- 1) "Limits on High Performance Applications" in Proceedings of the SPIE's International Symposium, ITCOM 2001, Commercial Applications for High-Performance Computing, Denver, CO. August 19-24, 2001.
- 2) "MultiMedia Browser (MMB)" in Proceedings of the SPIE's International Symposium, ITCOM 2001, Internet Multiple Management Systems II, Denver, CO. August 19-24, 2001 (with A. Salem).
- 3) "Real-Time Dead-Line Scheduling Simplicity" in Aviation Psychology, March 2001 (with Meilander and Baker).
- 4) "Interarchitecture Comparative Analysis" in Proceedings of the International Conference on Communication in Computing, Monte Carlo Resort, Las Vegas, NV, June 26-29, 2000 (with Meilander).
- 5) "Algorithms for Data Intensive Knowledge Discovery," AFSOR Summer Research Extension Program, Final Report, Dec. 1999.
- 6) "Flexible Parallel Processing in Memory: Architecture + Programming Model" in The Proceedings of the Third Petaflop Workshop, Frontiers 99, February 1999 (with Abu-ghazaleh, Baker, Walker and Wilsey).
- 7) "ACE: An Associative Calculus Data Structure" in Journal of Parallel and Distributed Computing, Vol 51, No. 1, May 1998, p. 63-74.
- 8) "ASC: An Associative-Computing Paradigm" in Associative Processing and Processors, IEEE Computer Society, Los Alamitos, CA, 1997, pp. 188-194 (with Baker, Scott, Bansal, Leangsuksun and Asthagiri).
- 9) "Scalable Heterogeneous Programming Tools" in Proceedings of the Heterogeneous Computing Workshop, Cancun, Mx, April 26, 1994, pp. 89-96 ( with Chen, Eshaghian, Freund and Wu).
- 10) "Heterogeneous Associative Computing", Keynote Speech, in Proceedings of the Workshop on Heterogeneous Processing, New Port Beach, Calif, April 13-16, 1993, pp. 3-11.
- 11) "A Data Parallel Shell for Large Knowledge bases" in Advanced Research Series in Knowledge Base Shells, World Scientific Publishers, 1992 (with Bansal).
- 12) ASSOCIATIVE COMPUTING, Research Monograph, Plenum Publishing Corp, February 1992.
- 13) "Exploiting Data Parallelism for Efficient Execution of Logic Programs with Large Knowledge Bases", (with A. K. Bansal), Proc. of the International Conference of Tools for Artificial Intelligence, Washington D. C., USA, November 1990, pp. 674 - 681.
- 14) "Array Processor Supercomputers", (with W. Meilander), Proceedings of the IEEE, Vol. 77, No. 12, December 1989, pp. 1896-1989.
- 15) "Data Structures for Associative Computers" in Proceedings of the 2nd Symposium on the Frontiers of Massively Parallel Computation, Oct. 10-12, 1988, George Mason University, Fairfax, VA.
- 16) "An Associative Model of Computation" in Proceedings of the Second International Conference on Supercomputing, Volume III, May 4-7, 1987, pp. 1-8.
- 17) THE MASSIVELY PARALLEL PROCESSOR, editor, MIT Press, 1985.