William V. Courtright II
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Professional Interests

Entrepreneurship, teaching, computer storage systems, virtualization and cloud computing, intellectual property management, data center design and operation, and academic administration.

Education

Carnegie Mellon University

Ph.D. in Electrical & Computer Engineering   **1997**
Dissertation: "A Transactional Approach to Redundant Disk Array Implementation"
Committee: Garth Gibson, Marty Francis, Jim Gray, Dan Siewiorek and Jeannette Wing
Contribution: Research produced RAIDframe, a transactional RAID system enabling rapid prototyping that also became the base RAID implementation in NetBSD and a variety of commercial RAID products.

National Technological University

M.S. in Computer Engineering   **1991**
Areas of Concentration: computer architecture, software systems.
Degree earned while a full-time employee of NCR/AT&T/Symbios Logic.

University of Kansas

B.S. in Electrical Engineering   **1986**
Area of Concentration: computer engineering (HW and SW)
Honors: Eta Kappa Nu

Professional Experience

Carnegie Mellon University – Pittsburgh, PA   2004 – present

Executive Director, Parallel Data Laboratory   **2004 – present**
Responsibilities include supervision of research staff (technical and administrative), financial management and reporting (including the creation and maintenance of a financial modeling database application used by numerous departments across the University), facilities management, and program management of larger research projects, such as a virtualized data center and a distributed file system. Responsible for the design and operation of a 2,000 sq. ft. data center provisioned for 750 KW of machine load. Technology transfer and outreach to industry affiliates.

Executive Education, Tepper School of Business and School of Computer Science   **2011 – 2020**
Develop and deliver technical material for industry clients from around the world. Topics include data centers, IT infrastructure, cloud computing and enterprise dependability.

Last revised: March 2025

Adjunct Professor, Tepper School of Business   **2007 – 2016**

Responsibilities include teaching, advising and providing general support to the Don Jones Center for Entrepreneurship. For specific contributions, refer to the "Teaching," "Student advising," and "Service" sections below.

Commercialization Specialist, i6 Program   **2010 – 2012**

This work was sponsored by a $2 million award for the US Dept. of Commerce's Economic Development Authority. My role was to help select companies for inclusion into the program and then mentor a company to work in an agile fashion, use early customer engagement to vet business opportunity and deliver an investor pitch.

Panasas – Pittsburgh, PA (co-founder, employee #1)   1999 – 2004

Chairman, Technical Advisory Board   **2004**

Created board, set strategic plan, created compensation plan, recruited members.

Vice President/Director, Program Management   **2001 – 2004**

Led cross functional team responsible for product features, product release, measurements and product schedules. Company shipped first product during this period. Created and led a change control board and established change management procedures. Worked with others to form and oversee customer focus groups to refine product functionality.

Patent/IP Coordinator   **1999 – 2004**

Created and supervised internal patent/IP process. Screened and managed attorneys, including fee negotiation. Internal reviewer of legal/IP materials including patents, NDAs, employee contracts, vendor contracts, etc.

Pittsburgh Site Manager   **1999 – 2004**

General management of all site-specific functions. This included IT operations, physical assets, petty cash, events and facilities (including lease negotiation).

Chief Operating Officer   **1999 – 2001**

Directly responsible for all employees and operations of the company. This included engineering, QA, finance (including shareholder relations and two private placements), legal, IP, accounting (including banking and vendor management), HR, facilities management, marketing, and IT functions. Built each function from scratch to an overall organization of 73 full-time employees and $12.2M in equity financing. Used financing to hire CEO and executive team with domain expertise to then run each function.

Secretary/Treasurer   **1999 – 2001**

Kept minute book, organized board meetings, worked with attorneys to prepare resolutions, managed tax & audit functions and established initial investment rules.

Carnegie Mellon University – Pittsburgh, PA   1998 – 1999

Executive Director, Parallel Data Laboratory   **1998 – 1999**

Responsibilities include supervision of research staff (technical and administrative), financial management and reporting, facilities management, and program management of larger research projects. Technology transfer and outreach to industry affiliates.

NCR/AT&T/Symbios Logic – Wichita, KS   1986 – 1998

Patent Liaison, Storage Systems Division   **1996 – 1998**

Solicit and evaluate invention disclosures. Shepherd patent filing preparations and employee award program. Review patents.

Sr. Consulting Engineer, Storage Systems Division   **1997 – 1998**

Led the transition from a proprietary storage management toolset to one that was standards/web-based and supported a distributed storage management architecture.

Consulting Engineer, Strategic Marketing   **1996 – 1997**

Contributing member of the team responsible for architecture and technology planning, market analysis and product roadmap planning for the storage systems division. Products ranged from chip (IOPs) to board products to complete systems.

Sr. Principal Design Engineer, Storage Systems Division   **1992 – 1996**

Created and shipped an OEM RAID controller—this was an extraordinarily demanding schedule, running from concept to production in 12 months, and the product was delivered on schedule. Then spent 3 years on full-time academic leave at Carnegie Mellon University as a sponsored Ph.D. student. Completed all research in 3 years, then returned to full-time employment and completed dissertation in absentia within 6 months.

Principal Design Engineer, Storage Systems Division   **1989 – 1992**

Participated in the development of disk array controller architectures. Established a pilot program for collecting data from OEM customers. Designed 1 of 4 ASICs that comprised the industry's first RAID chipset which was featured on the cover of Electronic Design. In parallel, developed a multi-ASIC in-situ simulation environment that led to all 4 chips being first-pass successes. Worked with Mentor Graphics to develop in-situ simulation solutions and improve the performance of their simulation tool, Quicksim. Introduced VHDL to our local HW design organization.

Design Engineer, Storage Systems Division   **1988 – 1989**

Design engineer of a dual-channel SCSI Multibus HBA. Continued to lead cross-functional CAD team (see below).

Associate Design Engineer, Storage Systems Division   **1987 – 1988**

Led design of a 5,000 standard cell Multibus I/F ASIC, conception through test pattern generation. Created and led a cross-functional CAD team to overhaul the entire design environment (schematic capture, simulation, board & chip layout, patter generation and coverage testing).

Graduate Design Engineer, Storage Systems Division   **1986 – 1987**

Designed and shipped embedded SW for a minicomputer performance monitoring device. Designed the first surface mount product to be manufactured in our division, a 4-channel serial card.

The University of Kansas   1982 – 1985

Research Programmer, Telecommunications and Information Sciences Laboratory   **1985**

Developed 3-dimensional imaging software for research in remote sensing systems.

Math Tutor, Supportive Educational Services   **1982 – 1985**

Led recitation sessions of 6-8 students as well as 1-1 tutoring for algebra, differential calculus, integral calculus and differential equations.

Empire District Electric – Joplin, MO   1984

Summer Intern   **1984**

Implemented a load projection application on a Prime minicomputer. Surveying and drafting work.

Apache Computer Systems – Baxter Springs, KS   1983

Summer Intern   **1983**

Ported a refuse management application to an IBM PC-based system. Reviewed design & implementation and recommended changes.

Awards (Professional)

NCR/AT&T/Symbios Logic

- Professional Performance Award for development of the Cherokee Disk Array Controller   1992
- Professional Performance Award for the design of the Mercury RAID ASIC   1991
- Professional Performance Award for cost reductions and manufacturing improvements of the HPMSC (SCSI/Multibus) host adapter   1989
- R&D Award for VLSI ASIC design and CAD developments   1988
- R&D Award for firmware design of an embedded performance monitor   1987

The University of Kansas

- SES Outstanding Tutor   1985
- SES Outstanding Tutor   1984

Publications

1. M. Abd-El-Malek, W.V. Courtright II, C. Cranor, G.R. Ganger, J. Hendricks, A.J. Klosterman, M. Mesnier, M. Prasad, B. Salmon, R. R. Sambasivan, S. Sinnamohideen, J.D. Strunk, E. Thereska, M. Wachs, J.J. Wylie. Early Experiences on the journey towards Self-* Storage. *Bulletin of the IEEE Computer Society Technical Committee on Data Engineering.* (September 2006).

2. M. Abd-El-Malek, W.V. Courtright II, C. Cranor, G.R. Ganger, J. Hendricks, A.J. Klosterman, M. Mesnier, M. Prasad, B. Salmon, R.R. Sambasivan, S. Sinnamohideen, J.D. Strunk, E. Thereska, M. Wachs, J.J. Wylie. Ursa Minor: versatility cluster-based storage. *Proceedings of the 4th USENIX Conference on File and Storage Technology (FAST '05)* (San Francisco, CA. December 13-16, 2005).

3. G.A. Gibson, D.F. Nagle, W.V. Courtright II, N. Lanza, P. Mazaitis, M. Unangst, and J. Zelenka. NASD scalable storage systems. (USENIX99, Extreme Linux Workshop) (Monterey, CA, June 1999).

4. W.V. Courtright II. Storage Requirements for clustered systems. *Computer Technology Review* (Spring, 1997) 55-55.

5. W.V. Courtright II, G. Gibson, M. Holland, L. Neal Reilly, and J. Zelenka. RAIDframe: A rapid prototyping tool for RAID systems. Published as CMU SCS Technical Report CMU-CS-97-142, 1997.

6. W.V. Courtright II. A transactional approach to redundant disk array implementation. Ph.D. dissertation. Published as CMU SCS Technical Report CMU-CS-97-141, 1997.

7. W.V. Courtright II, G.A. Gibson, M. Holland, and J. Zelenka. A structured approach to redundant disk array implementation. *Proceedings of the International Computer Performance & Dependability Symposium* (Urbana-Champaign, IL) (September 4-6, 1996) 11-20. Earlier version published as CMU SCS Technical Report CMU-CS-96-137, 1996.

8. W.V. Courtright II, G.A. Gibson, M. Holland, and J. Zelenka. RAIDframe: Rapid prototyping for disk arrays. *Proceedings of the 1996 ACM Conference on Measurement and Modeling* (SIGMETRICS) (Philadelphia, PA) (May 23-26, 1996) 268-269. Earlier version published as CMU SCS Technical Report CMU SCS Technical Report CMU-CS-95-200, 1995.

9. G.A. Gibson, D. Stodolsky, F.W. Chang, W.V. Courtright II, C.G. Demetriou, E. Ginting, M. Holland, Q. Ma, L. Neal, R.H. Patterson, J. Su, R. Youssef, and J. Zelenka. The Scotch parallel storage systems. *Proceedings of the 40th IEEE Computer Society International Conference* (COMPCON), (March 5-8, 1995). Earlier version published as CMU SCS Technical Report CMU-CS-95-107.

10. W.V. Courtright II and G.A. Gibson. Backward error recovery in redundant disk arrays. *Proceedings of the 1994 Computer Measurement Group (CMG) Conference, Vol. 1* (Orlando, FL, Dec. 4-9, 1994) 63-74. Earlier version published as CMU SCS Technical Report CMU-CS-94-193, 1994.

11. D. Stodolsky, M. Holland, W.V. Courtright II, and G.A. Gibson. Parity-logging disk arrays. *ACM Transactions on Computer Systems* 12(3):206-235, (August 1994).

12. D. Stodolsky, M. Holland, W.V. Courtright II and G.A. Gibson. A Redundant disk array architecture for efficient small writes. *CMG Transactions*, Issue 89-90 (Summer and Fall 1995) 65-84. Earlier versions published as CMU SCS Technical Report CMU-CS-94-170, 1994 and CMU SCS Technical Report CMU-CS-93-200, October 1993.

Patents

1. US Patent 7,640,325 – "Methods and apparatus for issuing updates to multiple management entities."
2. US Patent 6,769,022 – "Methods and apparatus for managing heterogeneous storage devices."
3. US Patent 6,584,499 – "Methods and apparatus for performing mass operations on a plurality of managed devices on a network."
4. US Patent 6,529,963 – "Methods and apparatus for interconnecting independent fibre channel fabrics."
5. US Patent 6,480,955 – "Methods and apparatus for committing configuration changes to managed devices prior to completion of the configuration change."
6. US Patent 6,480,901 – "System for monitoring and managing devices on a network from a management station via a proxy server that provides protocol converter."
7. US Patent 6,157,963 – "System controller with plurality of memory queues for prioritized scheduling of I/O requests from priority assigned clients."
8. US Patent 6,105,103 – "Method for mapping in dynamically addressed storage subsystems."
9. US Patent 6,023,754 – "Multiple channel data bus routing switch including parity generation capabilities"

Boards

Director – Panasas	1999 – 2001

Student Advising

PhD Thesis Committees

Luca Parolini (CMU ECE). Proposed 2010, defended 2012. Dissertation title: Models and Control Strategies for Data Center Energy Efficiency.

Other

Independent Study Advisory (Heinz)	2014 – 2015
Independent Study Advisor (CS)	2012 – 2013
Advisor to numerous student-led startup companies	2009 – present
Advisor to three MBA Capstone projects	2009 – 2010
Advisor to two business plan teams (both won in respective categories)	2009
Formed and lead weekly entrepreneurship luncheon seminar	2005 – 2009

Teaching

Carnegie Mellon University

Course Number	Course Title	Term	Enrollment	Instructor Rating
15-390/70-421	Entrepreneurship for Computer Scientists (co-taught)	Fall, 2015	36	4.57 / 5.0
16-697	MRSD Business Seminar I (team taught)	Fall, 2014	43	N/A
15-390-70-421	Entrepreneurship for Computer Scientists	Fall, 2014	40	4.78 / 5.0
16-697	MRSD Business Seminar I (team taught)	Fall, 2013	42	N/A
15-390/70-421	Entrepreneurship for Computer Scientists	Fall, 2013	34	4.58 / 5.0
70-415	Introduction to Entrepreneurship	Spring, 2013	30	4.68 / 5.0
16-697	MRSD Business Seminar I (team taught)	Fall, 2012	30	N/A
15-390/70-421	Entrepreneurship for Computer Scientists	Fall, 2012	31	4.84 / 5.0
16-697	MRSD Business Seminar I (team taught)	Fall, 2011	19	N/A
15-390/70-421	Entrepreneurship for Computer Scientists	Fall, 2011	40	4.67 / 5.0
15-390/70-421	Entrepreneurship for Computer Scientists	Fall, 2010	37	4.75 / 5.0
15-390/70-421	Entrepreneurship for Computer Scientists	Fall, 2009	36	4.73 / 5.0
15-390/70-421	Entrepreneurship for Computer Scientists (co-taught)	Fall, 2008	26	4.4 / 5.0
15-390/70-421	Entrepreneurship for Computer Scientists (co-taught)	Fall, 2007	23	4.29 / 5.0

Service - Professional

Contributing member, Ad Hoc Group – ITS Computing   **2012 – 2014**
Review and provide guidance to ITS Computing, an ECE-led IT organization that provides support to multiple engineering departments.

Contributing member, Selection Committee – Don Jones Accelerator   **2011**
Interview, evaluate and contribute to the final selection of teams that will be incubated by the DJC.

Judge – McGinnis Venture Competition   **2010 – 2011**
The McGinnis Venture Competition is an annual international business plan competition run by the Tepper School of Business at Carnegie Mellon University.

Panelist, Storage Networking Industry Association's (SNIA) annual meeting   **1998**
Panel session discussion of current and future directions of NAS and SAN storage architectures.

Director and Program Manager, National Storage Industry Consortium's NASD Working Group   **1998 – 1999**
Contribute to the ANSI X3T10 pre-standards agreement on Object-Based Disks. Led regular meetings and assisted in the production of a public 1-day conference on Network Storage.

Contributing member, Telecommunications and Computing Task Force   **1997 – 1998**
This committee provided guidance to U.S. Senator Pat Robert's Advisory Committee on Science, Technology and the Future.

Peer reviewer   **1993 – 2008**
   Provided critical reviews of pre-published works for conferences (FTCS, HPCA, ISCA and Sigmetrics) and journals (ACM Transactions on Computer Systems and IEEE Transactions on Computers).

Contributing member, IEEE P1244 Storage Standards Working Group   **1992 – 1993**
   Technical contributor to the development of this standard for mass storage systems.

Service - Personal

Member, Advisory Council – East Catholic School, Forest Hills, PA   **2015 – 2020**
   Support and contribute to the mission of the school by acting as a consultative and planning body in advising, assisting and supporting the principal in matters relating to the school. Principal hiring committee. Established and led annual Career Day event.

Merit Badge Counselor, Committee Member – Troop 90, Forest Hills, PA   **2017 – 2020**

Den Leader – Pack 90 Cub Scouts, Forest Hills, PA   **2015 – 2017**
                                                                                     2011 – 2013
   Prepare and lead den meetings, manage advancement, lead activities (including camping), etc. Den size up to 18 boys.

Cubmaster – Pack 90 Cub Scouts, Forest Hills, PA   **2013 – 2015**
   Leader of a Cub Scout Pack of 82 boys. Wide range of tasks that includes event management, leadership team development, recruiting, advancement, etc.

Assistant Soccer Coach – Woodland Hills Youth Soccer Association   **2009 – 2014**
   Lead drills and manage games for kids aged 4-6.

Debate Judge   **1990 – 1991**
   Judged at a high school debate tournament in Wichita, KS.

Community Band, Wichita, KS   **1987 – 1989**
   Played the French Horn as a founding member of the Senseney Community Band.

Assistant Scoutmaster – Troop 15, Baxter Springs, KS   **1981 – 1995**
   Helped the Scoutmaster by leading groups on 8-day canoe trips in Canada's Quetico Provincial Park.