Dr. George E. Gerpheide President of c2mw4, LLC

For over 20 years, George Gerpheide has been moving the world forward with creative new ways for humans to interact with their favorite machines.

While Dr. Gerpheide's hands-on technical and business expertise has led to an array of forward-looking technologies, he is best known as the creator of the world's first commercially successful **touchpad.**

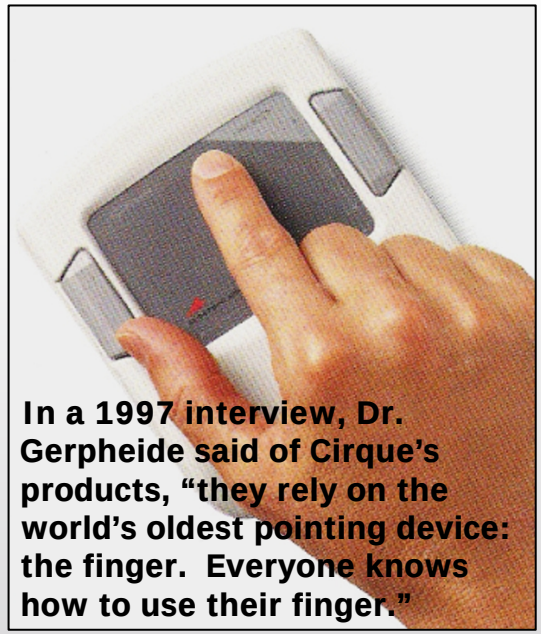
It's not all work
Dr. Gerpheide is an avid skier and world traveler.

The touchpad is the most prevalent pointing device for laptop computers today, and continues to move mobile information and communications technology forward since its 1994 world marketplace debut.

A pointing device with a human touch George Gerpheide's invention and commercialization of the touchpad revolutionized the way we use digital devices. More intuitive and natural compared to the mouse, stick-pointer, or trackball, the touchpad reduces strain on muscles and joints since its operation requires fewer repetitive movements.

Creating the Capacitance-Based Touchpad

The story of how George Gerpheide took the touchpad from the workshop to the world marketplace is a classic case study in entrepreneurship. Dr. Gerpheide founded the **Cirque Corporation** in 1991 to further develop and commercialize capacitance-based touchpad technology. Starting with only a handful of employees, Dr. Gerpheide turned Cirque into one of the fastest growing companies in the United States in just five years. Still breaking down barriers between people and machines, the Cirque Corporation continues to provide touch input solutions across a range of consumer and industrial markets.



In a 1997 interview, Dr. Gerpheide said of Cirque's products, "they rely on the world's oldest pointing device: the finger. Everyone knows how to use their finger."

CIRQUE®

George Gerpheide established Cirque in Salt Lake City, naming the company for the snowy glacial basins that drew the MIT graduate and skier to Utah's Wasatch mountains in the early 1980s.

Understanding what is technically possible and what makes commercial sense is one of Dr. Gerpheide's key strengths. Always on the cutting edge, he developed the touchpad before pointing-and-clicking was even a standard input method. At that time, the need for a novel pointing device was not apparent, but Dr. Gerpheide recognized potential markets for Cirque's products and persevered to make the company a leading provider of touchpad technology.

Creating the Capacitance-Based Touchpad

Under George Gerpheide's leadership as CEO, the Cirque Corporation created an entirely new category of products in the retail computer market. With creative marketing and effective strategic business planning, Cirque's line of pointing devices and keyboards moved into the spotlight.

In the summer of 1997, Cirque made upgrades to their first generation touchpad and marketed the new product quite cleverly as **The Cat**.

PC Magazine named Cirque's touchpads one of the best products of 1994. Cirque's products were also a "hot pick" for **PC World Magazine**, and **HomePC** magazine called Cirque's devices "hot stuff."

George Gerpheide's capacitance touchpad appealed to the editors of **Scientific American**, who invited him to write this article on his invention for publication in the July 1998 issue.

Cirque's touchpads quickly took their places on the shelves at major consumer electronics retail stores.

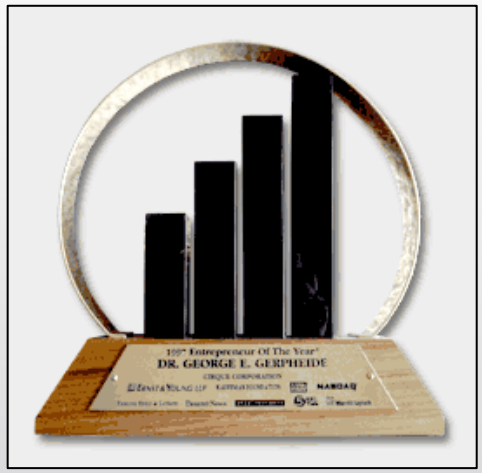
COMPUSA THE COMPUTER SUPERSTORE · COMPUTER CITY · BEST BUY · EGGHEAD COMPUTER · MICRO CENTER · Fry's ELECTRONICS · JR COMPUTER WORLD · FUTURE SHOP

Creating the Capacitance-Based Touchpad

The Cirque Corporation itself, through the dedication, perseverance, and creativity of its founder and employees, has enjoyed high-level acknowledgement and acclaim.

Inc. magazine recognized the Cirque Corporation as one of 500 fastest growing companies in America for two consecutive years (1996-1997).

Cirque also appeared as MountainWest Venture group's 1996 "Utah 100" list of the state's fastest growing companies.



George Gerpheide holds several regional and national awards for Cirque's success:

- 1997 Winner of the Ernst and Young LLP "Utah Entrepreneur of the Year" for Technology (also a Finalist in 1996, and a Judge in 1998)
- U.S. Small Business Administration's 1997 "Small Business Exporter of the Year"
- U.S. Chamber of Commerce 1997 "Blue Chip Enterprise Award" recognizing start-ups that overcome adversity

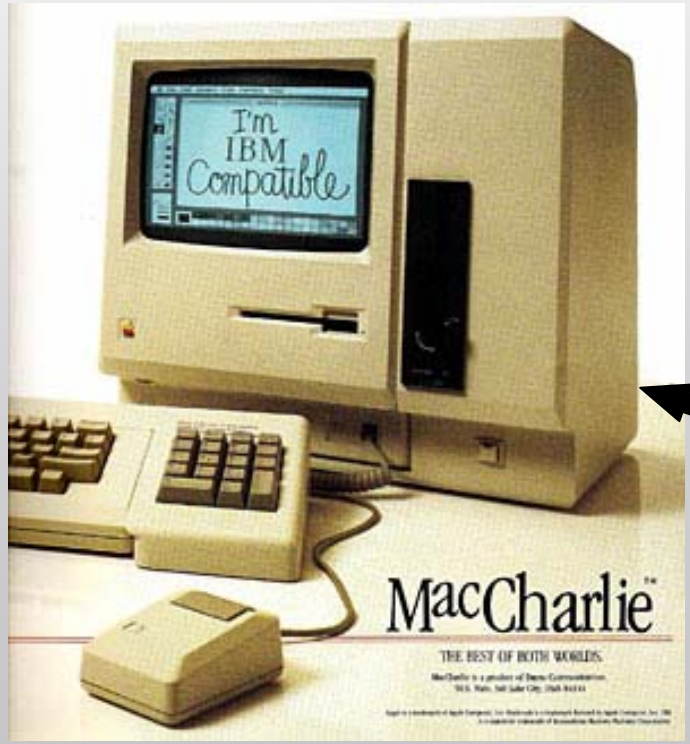
A spokesman for the *Utah Entrpreneur of the Year* program said of Dr. Gerpheide, "The truth is that George is just very innovative. He is a visionary."

And that's not all . . . Before leading the commercialization of capacitance-based touchpad technology as the founder of the Cirque Corporation, Dr. Gerpheide had already established and operated two other companies, Quality Microcomputer Instrumentation (QMI), and Aquila Instruments, Inc.

Other Examples of Dr. Gerpheide's Hands-On Technical Expertise

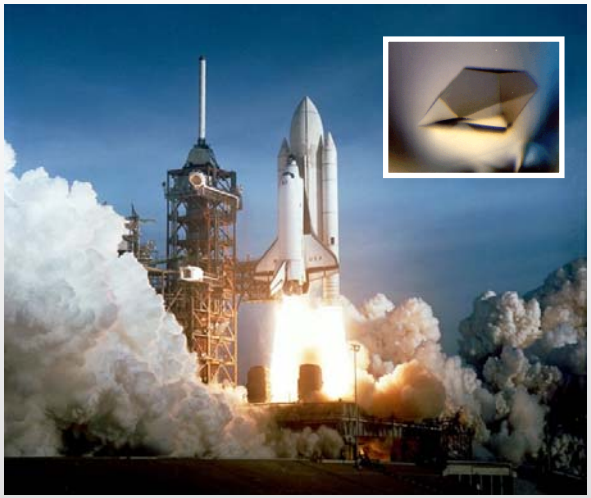
Including the 1989 parent filing for the touchpad, Dr. Gerpheide holds **18 U.S. patents** for innovations in data input and computer processing technology, computer-based inventory management, and interactive sports simulation.

Back in the days of the track-ball, Dr. Gerpheide was a creative influencer in the revolutionary laptop keyboard-screen arrangement that launched the Apple PowerBook 100 to number one on Mobile PC magazine's "Top 100 Gadgets of All Time."

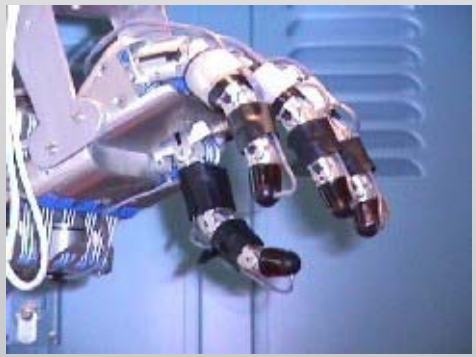


Remember back in 1981 when IBM marketed its first PC with a Charlie Chaplin ad campaign? Around that same time, Dr. Gerpheide was working with Dayna Communications on the aptly named *MacCharlie* co-processor, an attachable device that enabled Mac users to run IBM compatible applications. Also with Dayna, Dr. Gerpheide co-developed variable bit rate, cross-platform network interface circuitry and software that supercharged early Apple Talk networks.

Other Examples of Dr. Gerpheide's Hands-On Technical Expertise

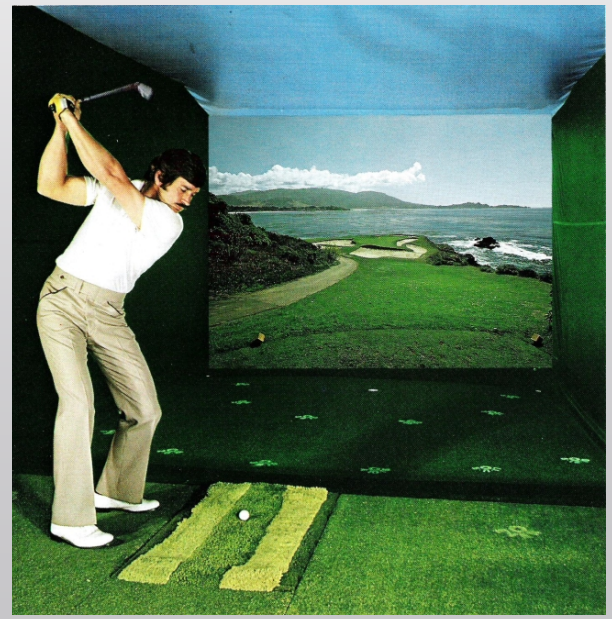


Dr. Gerpheide initiated and managed research on the growth of protein crystals in microgravity in conjunction with Utah State University for the 1984 Space Shuttle Challenger Mission 41-B. The experiment was part of a USU "Getaway Special," and required a specialized canister to house the crystal growing experiment. Dr. Gerpheide mentored four university students in the creation of the canister, which provided optimal conditions for protein crystal growth and could withstand a 3G takeoff acceleration.



Utah/MIT Robotic Hand As a Visiting Scientist to MIT's Artificial Intelligence Lab, Dr. Gerpheide developed control algorithms to animate a dexterous robotic hand. With 16 degrees of freedom, this pneumatics actuated, tendon coupled, anthropomorphic hand can achieve most fine motor movements of the human hand.

Par-T-Golf Dr. Gerpheide co-created this groundbreaking room-sized, full-swing computer golf game.



Professional Interest

As a consultant to the forerunners of new technology, George Gerpheide plays the essential role of reconciling great ideas with good sense:

- He recognizes both the technical feasibility and market opportunity of a new idea, while appreciating consumer needs, the cost of goods, and barriers to entry.

- He knows from experience how high tech companies build the competitive edge, and understands what it takes to formulate a solid value proposition for a product that satisfies a brand new or emerging consumer need.

- Whether to fill, or as with the touchpad, to *altogether create* a viable market niche for a new product, he can advise on the business, product, and technical strategies required to execute big ideas.

Acting as a visiting technical expert, board member, or advisory CTO, George Gerpheide can help you create your next big idea and move it forward. To learn more, please send an email to: inquiry@c2mw4.com

Overview of George E. Gerpheide's Experience and Qualifications

Hands-on technical expertise and strong knowledge of business development from start to end:

- Research and development
- Technology licensing
- Intellectual property
- Patent strategy
- Product definition
- Licensing of product line
- Manufacturing (domestic and overseas)
- Retail channel sales
- OEM sales
- Equity financing
- Strategic planning
- Marketing
- Accounting, business planning, & *proforma* worksheets
- Re-invention and turn-around
- Business strategy, key drivers, and analysis
- Exit strategy
- M & A

Overview of George E. Gerpheide's Experience and Qualifications

Credentials

- Inventor and creator of the first commercially successful touchpad
- Founder and CEO of the Cirque Corporation
- Ernst & Young, LLP "Utah Entrepreneur of the Year" for Technology 1997, Judge 1998, and Finalist 1996
- Cirque named to Inc. magazine's list of 500 fastest growing companies, 1996-1997
- MountainWest Venture group's 1996 "Utah 100" list of the state's fastest growing companies
- U.S. Small business Administration's "Small Business Exporter of the Year" 1997
- U.S. Chamber of Commerce "Blue Chip Enterprise Award" recognizing start-ups that overcome adversity

Overview of George E. Gerpheide's Experience and Qualifications

Academic record

BS in Electrical Engineering, MIT, 1975

- National Merit Scholar

PhD in Computer Science, University of Utah, 1981

- Graduate Research Fellow
- IBM Fellow

Overview of George E. Gerpheide's Experience and Qualifications

Portfolio of diverse and creative projects

- Touchpad inventor / Proxima, Inc.
- Founder / Cirque Corporation (touchpad commercialization)
- Founder / Aquila Instruments, Inc. (geophysical exploration equipment)
- Public service / State Government Centers of Excellence Selection Board
- Creative influencer / the #1 gadget of the "Top 100 Gadgets of All Time" (MobilePC, March 2005) regarding the basic keyboard-screen arrangement pioneered by the Apple PowerBook and universal in notebook computers today
- Technology liaison for Utah Dexterous Hand robotics / MIT Artificial Intelligence Lab Visiting Scientist
- Principal Investigator and Student Team Leader of Space Shuttle microgravity protein crystallization experiment / University of Utah Adjunct Professor
- Co-creator of a groundbreaking room-sized full-swing computer golf game / Par-T-Golf
- Creator of a unique retail inventory system / Accardis, Inc.
- Technical co-creator of the multi-format, multi-speed DaynaTalk network system, the Novell Netware for Macintosh network file system, the DaynaFile PC diskette drive, and MacCharlie PC co-processor for Macintosh / Dayna Communications

Overview of George E. Gerpheide's Experience and Qualifications

Eighteen U.S. Patents, and Additional Pending and Foreign Patents

U.S. Patent No.	Description
7,002,821	Zero drift analog memory cell, array and method of operation
6,730,863	Touchpad having increased noise rejection, decreased moisture sensitivity, and improved tracking
6,680,731	Flexible touchpad sensor grid for conforming to arcuate surfaces
6,639,586	Efficient entry of characters from a large character set into a portable information appliance
6,473,069	Apparatus and method for tactile feedback from input device
6,222,528	Method and apparatus for data input
5,914,708	Computer input stylus method and apparatus
5,861,875	Methods and apparatus for data input
5,767,457	Apparatus and method for audible feedback from input device
5,757,368	System and method for extending the drag function of a computer pointing device
5,565,658	Capacitance-based proximity with interference rejection apparatus and methods
5,349,303	Electrical charge transfer apparatus
5,340,108	Apparatus for projecting and moving a spot of light in a scene projected on a screen and for controlling operation of a stepper motor used therewith
5,305,017	Methods and apparatus for data input
5,277,426	Sports simulation system
4,975,830	Computer communication system having supplemental formats
4,563,739	Inventory and business management system which accounts for the contents of full and partially filled product containers
4,437,672	Golf Game simulating apparatus