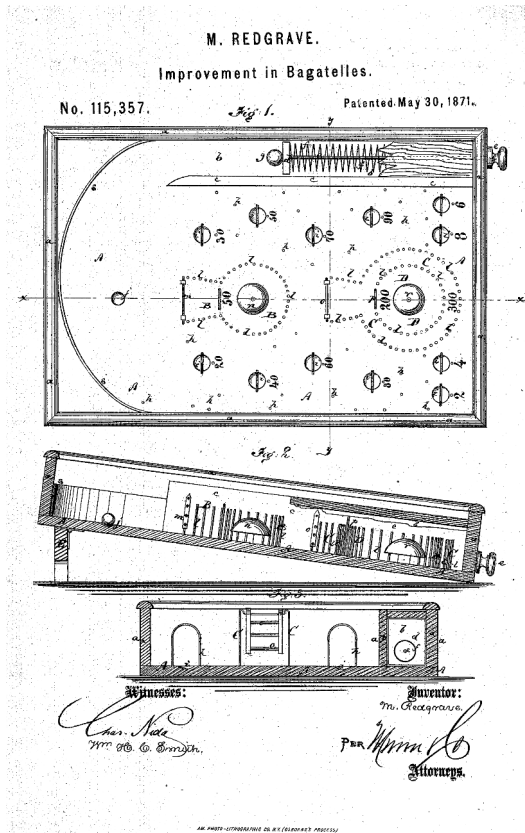


# Videogiochi, informatica per l'intrattenimento

Storia dell'Informatica  
a.a. 2025/26

- Videogioco, un tentativo di definizione
- Alcuni titoli storici (alcuni!)
- L'epica stagione degli home computer
- La cultura dei videogiochi
- La dimensione di un mercato



## --- BINGO ---

A GAME  
OF  
SKILL



5 SHOTS  
FOR  
1c

Dimensions  
24x16x7 inches

Shipping Weight, 24 lbs.

A fascinating game chock full of fun and thrills in a well constructed cabinet of solid walnut. A simple mechanical construction made of the best and most suitable materials.

A thousand machines already in operation in Chicago and making real money for the local operators.

**SAMPLE PRICE \$16.50 (F. O. B. Chicago)**

*Write for quantity prices*

To the operators comes an important announcement from D. Gottlieb & Company that production on their Bingo Machine has reached a stage whereby they can fill all orders promptly, and they ask that the operators place their orders with their nearest distributors, who are as follows:

BINGO NOVELTY COMPANY,  
102 So. Tremont Ave., Chicago, Ill.  
ATLANTA AMUSE U COMPANY,  
119 Grant St., S. W., Atlanta, Ga.  
AUTOMATIC AMUSEMENT COMPANY,  
215 W. Pine, Los Angeles, Calif.  
681 Linden Ave., Memphis, Tenn.  
IRVING BROMBERG,  
7 Miami Court, Brooklyn, N. Y.

F. C. EWING COMPANY,  
114 E. 15th St., Fort Worth, Texas.  
RENEY & SONS,  
206 E. 40th St., Chicago, Ill.  
SILENT SALES COMPANY,  
205 Gorman Bldg., Minneapolis, Minn.  
VENDING MACHINE COMPANY,  
105 Franklin St., Fayetteville, N. C.

## D. GOTTlieb & CO.

4318-24 W. Chicago Avenue

CHICAGO, ILL.

**GUARANTEE:** To refund full purchase price if dissatisfied after 10 day trial.



## □ Goldsmith & Mann

- Si spara
- Sagoma meccanica
- Proiettile elettronico
- Collisione meccanica
- Esplosione elettronica

## □ Video sì, programma no

- Meccanica
- Elettronica analogica
- Interazione in tempo reale

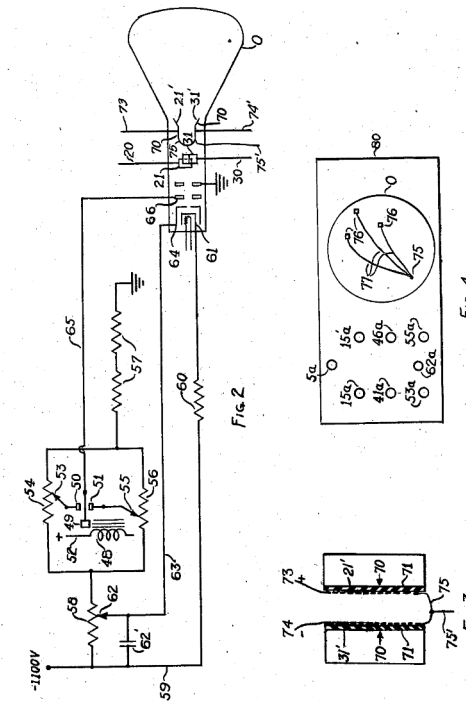
Dec. 14, 1948.

T. T. GOLDSMITH, JR., ET AL  
CATHODE-RAY TUBE AMUSEMENT DEVICE

2,455,992

Filed Jan. 25, 1947

2 Sheets-Sheet 2



Thomas T. Goldsmith, Jr.  
Earle Ray Mann, INVENTORS

BY  
Charles W. Mortimer

- Alan Turing & David Champernowne
  - Programma per giocare a scacchi
  - Eseguito “su carta” da Turing e Champernowne
  - Circa mezz’ora per ogni mossa
  - Perse con Alick Glennie
  - Vinse con la moglie di Champernowne
  
- Algoritmo sì, programma no, video nemmeno
  - Manca proprio il calcolatore, in effetti
  - Un tentativo di implementazione sul Mk1

## □ Canadian National Exhibition

- Josef Kates (UTECH)
- Tic-tac-toe
- Per il pubblico
- Macchina dedicata (demo Additron)

## □ Un arcade?

- Programmato
- Grafico
- Interazione a turni



## □ Dietrich Prinz

- Manchester/Ferranti Mk1
- Problemi di scacchi del tipo “matto in due mosse”
- Programmato, su un calcolatore generico
- Risoluzione in 15-20', con ingresso su nastro
- A “giocare” è in realtà solo il calcolatore...

## □ Sempre Prinz

- Ancora su un Ferranti, ma a Roma (1955/56)
- Musikalisches Würfelspiel



- Il Nim della Ferranti
  - Per il Festival of Britain
  - Poi al Berlin Industrial Show
  - John Bennett
  - Buona matematica
  - Gran divertimento
- Antenato elettromeccanico
  - Westinghouse Nimatron
  - New York World Fair, 1940
  - US Patent 2215544



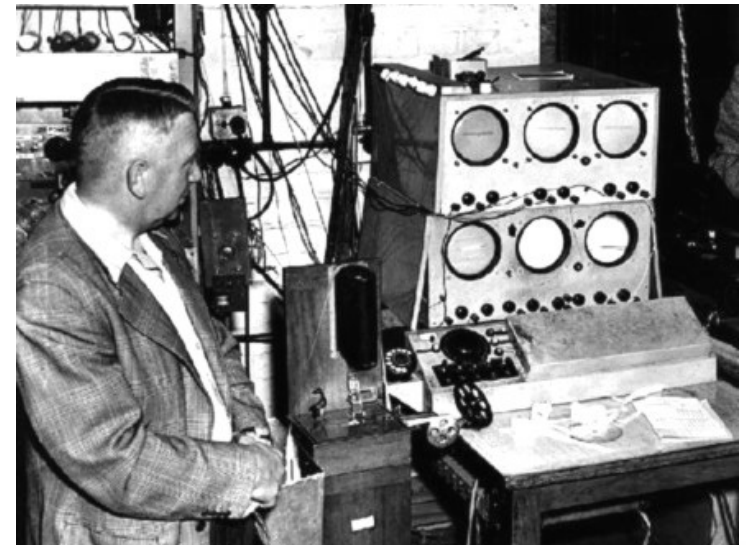


## □ Sull'EDSAC di Cambridge

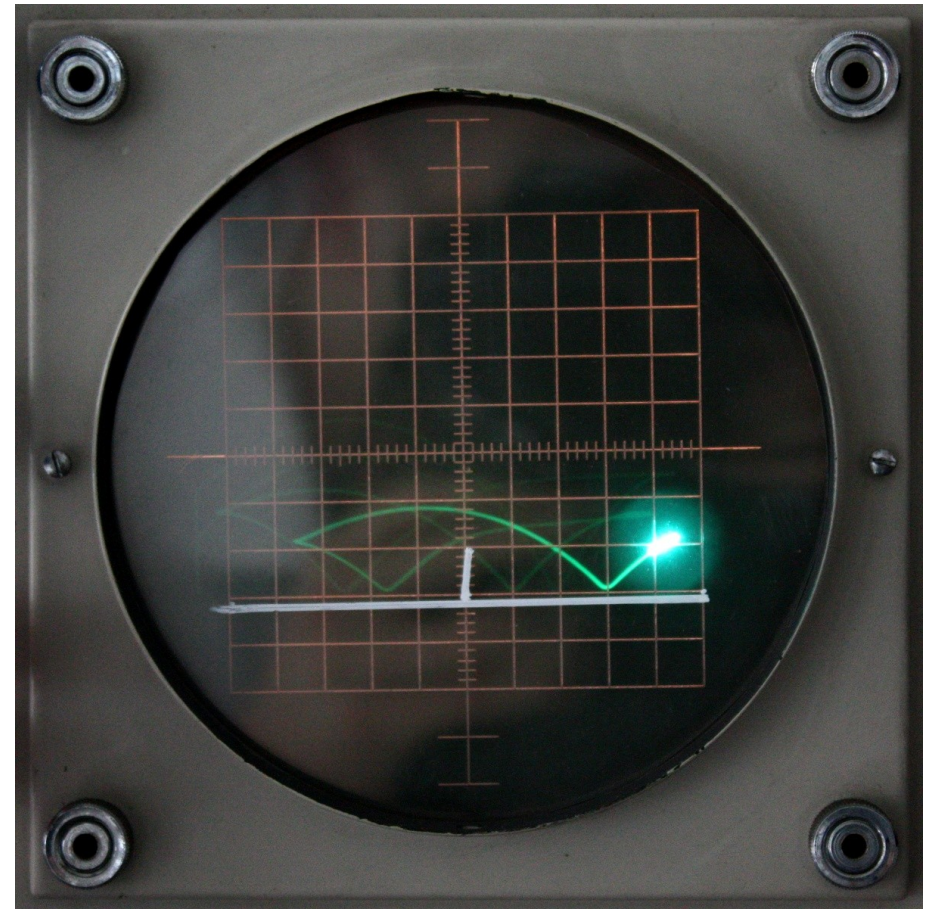
- Alexander S. Douglas
- Dottorato su interazione uomo-calcolatore
- Tubi catodici per visualizzare le memorie (a ritardo)

## □ Caratteristiche

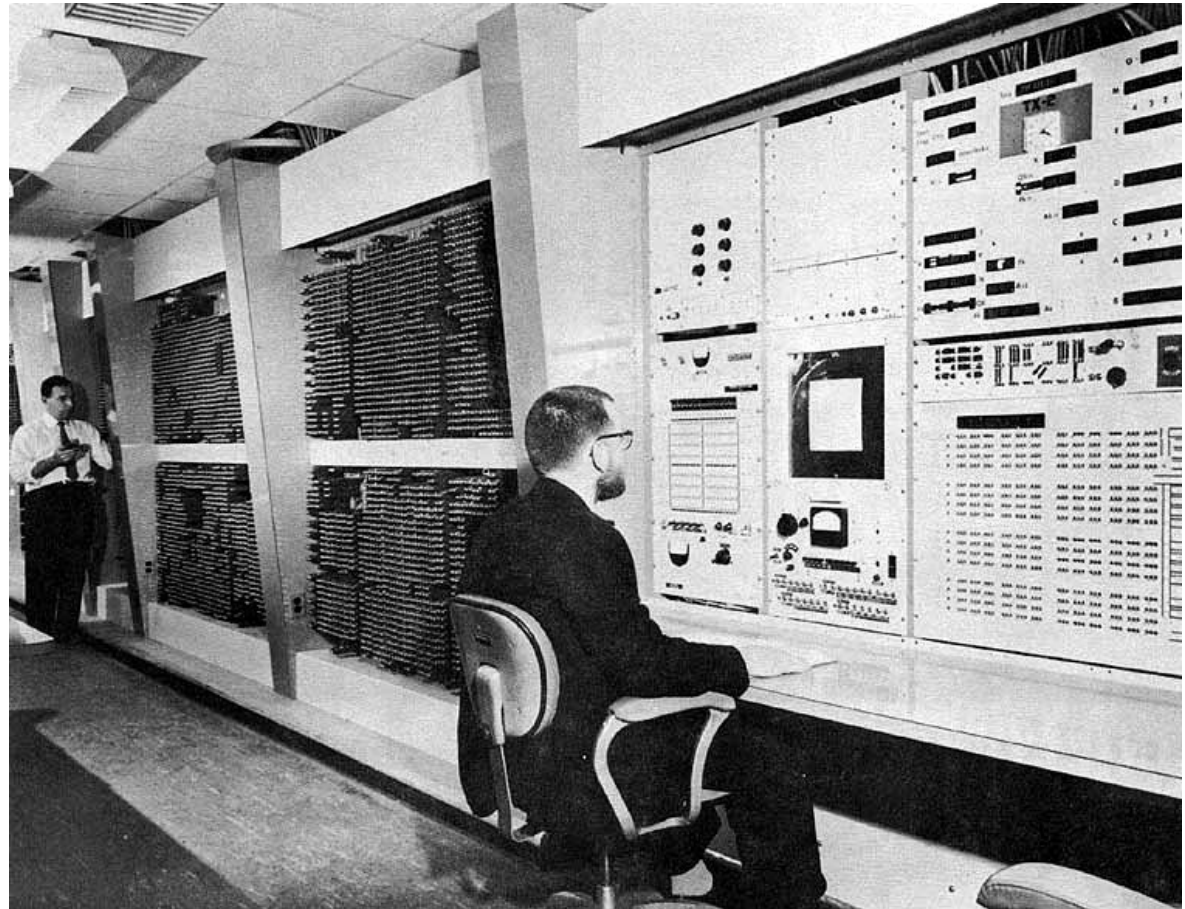
- Programmato
- Grafico e a pixel!
- Interfaccia dedicata
- Interattivo, ma a turni



- William Higinbotham
  - Donner Model 30
  - Per il pubblico del Visitor Day al Brookhaven Nat. Lab.
  - Allestito due volte
- Niente programma
  - Multigiocatore, suono
  - Tempo reale
  - Ma analogico

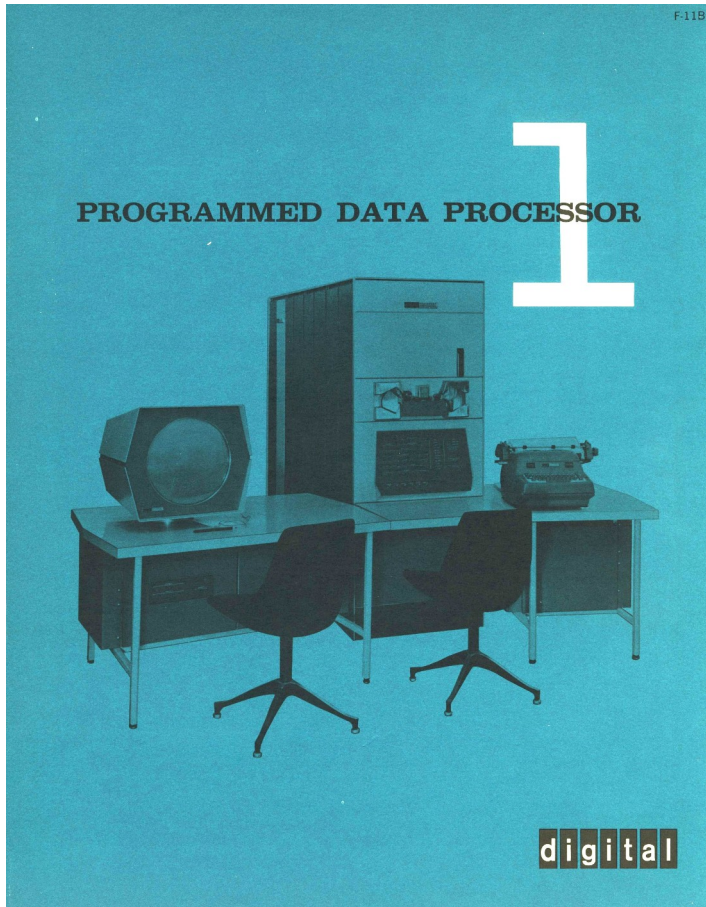


- MIT TX-0/2
  - Wirlwind project
  - Interazione in tempo reale, grafica
  - AN/FSQ-7
- Giochi
  - Maze
  - Tic-tac-toe (!)





# 1960, Digital PDP-1



## □ Hingham Institute (finto)

- Steve Russell,  
Martin Graetz,  
Wayne Wiitanen

## □ Il Gioco

- Grafico
- Programmato
- Interattivo
- Fisica mediata
- Multigiocatore
- In tempo reale



- Requisiti per la demo perfetta (Hingham Inst.)
  - It should demonstrate as many of the computer's resources as possible, and tax those resources to the limit
  - Within a consistent framework, it should be interesting, which means every run should be different
  - It should involve the onlooker in a pleasurable and active way - in short, it should be a game

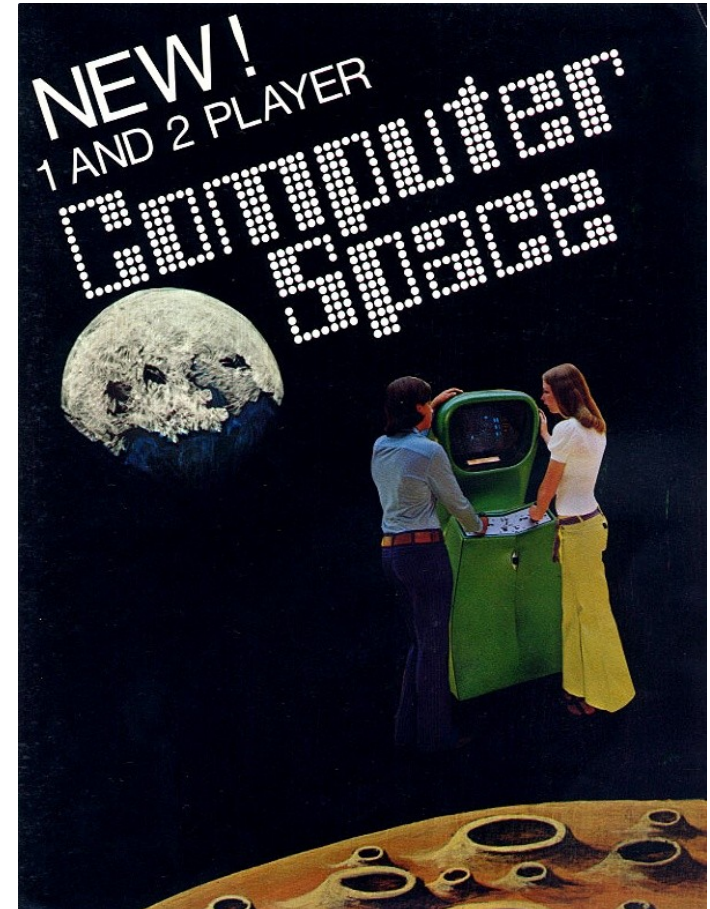
- Su un PDP 11/20
  - Solo a Stanford
  - 10 c a partita (25 per 3 partite)
  - Multiterminale
  - 8 anni di servizio





## □ Nutting Associates

- Nolan Bushnell, Ted Dabney (prima di Atari)
- Primo tentativo sul Data General Nova
- Poi hw dedicato
- In sala giochi
- Ma troppo complicato per i bar



Oggi STI n. 180, F. Talarico, L. Montgnani

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ROLLING STONE, DECEMBER 7, 1972

## SPACEWAR

THE FIRST "INTERGALACTIC SPACEWAR OLYMPICS" WILL BE HELD HERE, WEDNESDAY 19 OCTOBER, 1972. FIRST PRIZE WILL BE A YEAR'S SUBSCRIPTION TO "ROLLING STONE". THE RALA EVENT WILL BE REPORTED BY STONE SPORTS REPORTER STEWART BRAND & PHOTOGRAPHED BY ANNIE LEBOVITZ.

LAST PAGE!

**R**ace or not, computers are coming to the people. That's good news, maybe the best since psychology. It's way off the track of the "Computers—Threat or Menace?" school of liberal criticism but surprisingly in line with the romantic features of the futuristic of the science such as Norbert Wiener, Warren McCulloch, J.C.R. Licklider, John von Neumann and Vannevar Bush.

The trend owes its health to an odd array of influences: The youthful fervor and firm die-hardism of the freaks who design computer science, an automatically enlightened research program from the very top of the Defense Department, an unexpected market-making movement by the manufacturers of small calculating machines, and an irrepressible midrange phenomenon known as Spacewar.

Reliable, at any nighttime moment (i.e., non-business hours) in North America hundreds of computer technicians are effectively out of their bodies, locked in life-or-death space combat computer-propelled onto cathode ray tube display screens, for hours at a time, raring their eyes, numbing their fingers in frenzied mashing of control buttons, joyously slaying their friends and wasting their employer's valuable computer time. Something basic is going on.

Realistically, Spacewar controls two humans, two sets of control buttons or joysticks, one TV-like display and one computer. Two spacecraft are displayed in motion on the screen, controllable for thrust, yaw, pitch and the firing of torpedoes. Whenever a spacecraft and torpedo meet, they disappear in an attractive explosion. That's the original version, invented in 1962 at MIT by Steve Russell. (More on him in a moment.)

October, 1972, 8 PM, at Stanford's Artificial Intelligence (AI) Laboratory, mountains and remote in the foothills above Palo Alto, California. Two dozen of us are jammed in a semi-dark console room just off the main hall containing AI's PDP-10 computer. AI's Head System Programmer and most avid Spacewar nut, Ralph Gomberg, fires a display screen which says:

THIS CONSOLE AVAILABLE.  
He taps in on the keyboard with his nimble Click-click-click-click click.

LI, REU.  
CMD: FULL PUNCH, SATURDAY 11 AM IN FLUXIO PARK.

He interrupts further announcements, including one about the "First Intergalactic Spacewar Olympics" at 8 PM, with a "Click-click-click-click" ("Space War Ralph") ("Click it").

R, SING.  
WELLING TO SPEAK.  
HOW MANY TIMES, MAXIMUM 10: 5

Stewart Brand, 31, is a graduate of Stanford University from 1968 to 1971; he edited the Whole Earth Catalog.

**Fanatic Life and Symbolic Death Among the Computer Burns**  
by Stewart Brand

While battleship, improving to improve attack.

A game is over when only one or no survivors are displayed. The screen then blanks out, counts down 5-4-3-2-1, and redisplay a new battle with ships at new random positions equidistant from the sun and showing scene accumulation from previous games. A spaceship that is killed only in a battle will re-emerge after 10 seconds and repeat the fray, so that a single battle may last up to five minutes with a weak player persisting several times in it.

The theory or so reason competitors in the Spacewar Olympics quickly organize their events. Free-Play Free-For-All, Team Competition (two against two), and Single Competition. The executive officer of the AI Project, Les Lamont, who kindly offered these Olympics and their viability, is found to have no immediate function in a room out for beer.

The setting and decor at AI is Modest. Mad Scientist—long hallways and cubicles and large windows rooms, old furniture, cluttered with machines humming and clattering, robots on wheels, scurrying around technicians. And, also, posters and announcements against the Vietnam War and Richard Nixon, computer print-out photos of girlfriends, a halfway-long banner celebrating Tatar's Pioneer Tatarian, and signs on every door in Lamont's club. Tatarian except the director's office is behind the coffee room. The Prancing Pony, the computer room. Modest. There's a lot of hair on those technicians, and nobody seems to be selling them where to store.

The game program. A tape recorder kibbles on the first round of Team Competition, fast ships twisting, coming, evading, exploding.

Where on P? Where on P? Click click-click-click.

Agg! Click-click-click click.

Glick! Click-click.

OK, I won't shoot. Click-click-click.

Go on, work. Torpedo. Average. Click-click-click.

Go on, fire. Click-click.

OHAMMM! NO! You killed me, Torpedo. Being partners means never having to say your sorry. Click-click-click.

Got him! Got the mother! Click-click-click-click.

Sacrifice. Click-click click.

Lemme get on orbit. Click-click.

Way to dodge. Click-click-click-click.

Awah.

The other guy was out of torps. I knew it and waited till I got a good shot. Click-click.

A beautiful O'lord. Click-click-click.

I shot him but he's dropped. Click-click-click.

He's dead.

We win! Torpedo and Ram!

Competition. Team and Ram was the Team Competition (Ram is how Robert E. Marx is known to the computer science by his friends). Bruce Barlow, who by day builds testing intelligence into a robot vehicle, won the Free-For-All with a powerful performance. And also Torpedo took the Single.

And, meanwhile, your photographer, Anne, was tagged all over the lab to see the handy, rather numbingly grandiose, various spectacular game.

Falling into orbit around the central point. Brille, in lower left, deflates. Fanny Fins in single combat, then attempts to link arms on Purity Fins (upper right), who has caught Roundback's torpedo and outmaneuvered. Roundback head to head.

As kills are made the displayed numbers keep score.

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ROLLING STONE, DECEMBER 7, 1972

## Spacewar

Bruce Barlow, winner of the Free-Play Free-For-All at the First Intergalactic Spacewar Olympics, brandishing control buttons in triumph.

Spacewar is not only intriguing history, it's the most sophisticated analysis of good game design I've ever run across—elegant work. But that's in retrospect; back then it was just kids having up all night.

"We had this brand new PDP-1," Steve Russell recalls. "It was the first min-computer, ridiculously inexpensive for its time. And it was just sitting there. It had a console typewriter that worked right, which was rare, and a paper tape reader and a cathode ray tube display. [There had been CRT displays before, but primarily in the Air Force System.] Somebody had built some little pattern-generating programs which made interesting patterns like a kaleidoscope. Not a very good demonstration. Here was this display that could do all sorts of good things! So we started talking about it, figuring what would be interesting displays. We decided that probably you could make a two-dimensional maneuvering sort of thing, and decided that naturally the obvious thing to do was 'space-ships'."

Naturally.

"I had just finished reading 'The Smith's Letterman' series. He was some sort of scientist but he wrote this really dashing brand of science fiction. The details were very good and it had an excellent pace. His heroes had a strong tendency to get pursued by the villain, so they were the galley and have to invent their way out of their problem while they were being pursued. That sort of action was the thing that intrigued Spacewar. He had some very glowing descriptions of spaceship encounters and pure fun moments."

"Doc" Smith.

"The book inspired upon the Vietnam, every weapon affine, but, as Cogan had expected, Nevada's version was completely ready for any emergency. And, unlike her sister-ship, she was manned by scientists well-versed in the fundamental theory of the weapons with which they fought. Beams, rods and lanes of energy fanned and flared; planes and pencils were, slanted and stabbed, defensive screens glowing redly or faded suddenly into memory brilliant, consuming incandescence. Crumpled opacity struggled suitably against vast curtains of assimilation. Material properties and torpedoes were launched under full-beam control, only to be exploded harmlessly in mid-space, to be heard into nebulas or to disappear innocuously against impenetrable polyethylene screens."

Steve Russell. "By pecking a world which people were familiar with, we could alter a number of parameters of the world in the interests of making a good game and of making it possible to get into a computer."

"We made a great deal of compromises from some of our original grand plans in order to make it work well."

"One of the important things in Spacewar is the pace. It's relatively fast-paced, and that makes it an interesting game. It seems to be a reasonable compromise between action-pushing buttons—and thought. Thought does help you, and there are some small considerations, but just plain action is also help."

"It was quite interesting to fiddle with the parameters, which of course I

—Continued on Next Page

memory display backs, computer music programs, the color video image maker. Four intense hours, much focus and skilled concerted action, a 15-minute run in six different directions, the most buzz-buzz scene I've been around since Mary Pickford and Toots. . . and really it's just a normal night at the AI Project, at any suitable hairy computer research project. Something basic.

These are hands, most of them. Half or more of computer science is hands. But that's not it. The rest of the construction is laid low and back these days, showing none of the kind of zeal what, then?

**The Hackers**

I'm guessing that Alan Kay at Xerox Research Center (more on them shortly) has a line or two, following the trend and Computer Hack.

As though at straight, you'd expect historians to look. It's that kind of fanaticism. A true hacker is not a group person. He's a person who likes to stay up all night, and the machine is a low-harmony relationship. . . They're kids who tended to be brilliant but not very interested in conventional goals. And computing is just a fabulous place that, because it's a place where you don't have to be a P.D. or anything else. It's a place where you can still be an artisan. People are willing to pay you if you're any good at all, and you have plenty of time for screening around."

The hackers are the technicians of this science. "It's a term of devotion and also the ultimate compliment." They are the ones who translate human demands into code that the machines can understand and act on. They are legion. Fantasy with a potent new toy. A mobile new-found idea, with its own apparent, language and character, its own logic and humor. These may reflect more than their flying machines, scoring a leading edge of technology which has no other refuge to its own country, where odds are not degree or routine so much as the stark demands of what's possible.

A young science teacher where the young take it. The same computer research directors have learned that trusting their young programmers with more responsibility can lead immediately to no research. AI is one of perhaps several dozen computer research centers that are flourishing with their young, some of them with as more formal education than they get at the local Free School. I'm talking to Les Lamont, the great who went for beer. He's tall, warily, has a black and white beard, long hair, and a dark abet. He's telling me about the people he built his thesis reference of Spacewar. There's a speech recognition project. There's the hand-eye project, in which the speaker is learning to see and visually correct its own functions. There's work on symbolic computation and grammatical inference. Work with autistic children, "trying to get them to relate to computers, and then later to people."

This seems to be successful in part because many of these children think of themselves as machines. You can encourage them to interact in a game with the machine.

Another window on the interests of



- Un marchio notevole
  - Allan Alcorn,  
Nolan Bushnell,  
Ted Dabney
  - In sala giochi
  - Sofisticato, ma intuitivo
  - Grande successo
  - Causa con Magnavox
- Di nuovo niente programma





- Un lungo progetto
  - Dal 1966
  - Ralph Baer, William Harrison, William Rush
  - Domestico
- Niente programma
  - Elettronico
  - Logica nelle cartucce

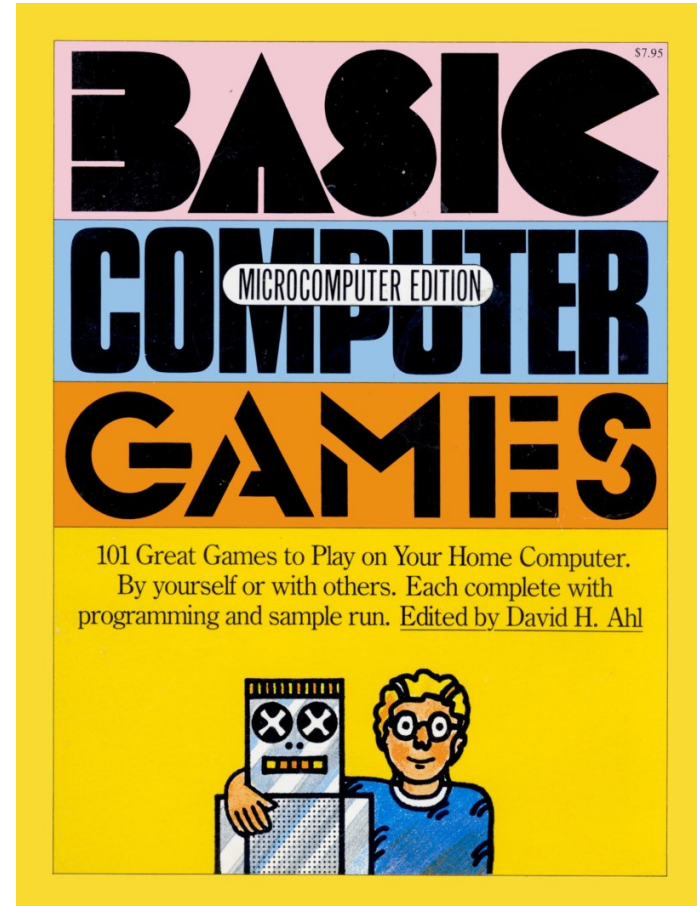


## □ 101 Basic Computer Games

- 1° ed. 1973, Digital
- 2° ed. 1978
- David H. Ahl
- La newsletter
- Creative Computer

## □ Le macchine

- Digital PDP 8 e succ.
- Data General Nova
- HP 2100



- READY!
- Programmabili subito
- BASIC,  
ma solo per iniziare
- Non solo C=64



- Un motto di Jack Tramiel
- Una storia interessante
  - Imprenditore nel settore delle macchine da ufficio
  - Fonda la Commodore nel 1954, a Toronto
  - Nel 1975 incontra Chuck Peddle, il 6502 e il KIM
  - Con il capitale di Irving Gould compra MOS Tech
  - Nel 1977 inizia con i PET/CBM
  - Nel 1980 entra nelle case con il VIC-20 (1M venduti)
  - Nel 1982 arriva il C=64 (12M venduti)



## □ Oltre al C=64

- Texas Instrument TI/99, dal 1979, 16 bit
- Sinclair ZX 80, 1980, il primo di una stirpe inglese
- Sinclair ZX Spectrum, 1982, l'antagonista
- Gli MSX, dal 1983, una vana santa alleanza
- E poi Mattel Aquarius (1983), IBM PCjr (1984),  
gli altri Commodore: Max/10, 16, 116, Plus4, 128

## □ Caratteristiche tipiche

- Versati per i giochi, come le console (Atari 2600, NES)
- Paragonabili ai fratelli “maggiori” (Apple II)
- Spesso più sofisticati

- Il BASIC di default (Microsoft)
  - Non eccezionale, meglio, per dire, il Simons' BASIC
  - Lento, un interprete in fin dei conti
  - Comunque un bel giocattolo per cominciare
- Poi Assembler, Forth, C, Pascal...
- Accesso alle funzioni avanzate
  - VIC-II e SID, i chip per grafica e sonoro
  - Attraverso locazioni di memoria
  - POKE <locazione>,<valore>

## 1985, Garry Kitchen's GameMaker

- Activision
- C=64, Apple II, IBM PC...
- The Editor
  - + SceneMaker
  - + SpriteMaker
  - + MusicMaker
  - + SoundMaker



- Shoot'em up Construction Kit  
Sensible Software
- Jonathan Hare  
Chris Yates
- C=64  
Amiga  
Atari ST



## □ Tecnologia

- Da sempre i calcolatori sono stati sfruttati per giocare
- Tuttora un settore tecnologicamente interessante

## □ Industria

- Hardware, software, merchandising
- In USA ha sorpassato cinema (2005) e musica (2007)

## □ Riferimenti culturali

- Derivazioni, contaminazioni, citazioni
- Dimensioni narrative nuove: partecipazione diretta

## □ Utili a incuriosire e oltre (gamification)

- Prima apparizione nel 1981, Donkey Kong
  - Shigeru Miyamoto
  - Protagonista, ma senza l'onore del titolo
- Una trama
  - Fra i primi giochi ad avere una storia
  - Originariamente pensata per Popeye, Olive e Bluto
- Una identità
  - Jumpman, Mr. Video, infine Mario
  - Carpentiere, poi idraulico italoamericano di New York
- Since '81. And still jumping!

- Il crash del 1977 delle home console
  - Magnavox Odyssey, Fairchild VES, Coleco Telstar
- Il successo dell'Atari 2600 (già VCS, 1977)
- Il crash n. 2 del 1983, di arcade, console, software
- La ripresa made in Japan del NES (1983)
- La concorrenza degli home computer
- Il dominio di Playstation (1994) e Xbox (2001)
- Smartphone, altri intrattenimenti, ritorni
- 2024: >180 G\$ in crescita...



## □ Cos'è “arte”

- Qualcosa capace di esprimere idee, impressioni, sentimenti *oltre* l'oggetto stesso
- Incluse le provocazioni, i *ready-made*...

## □ Posizioni varie sui videogiochi

- Come il bingo o il cricket, non sono arte
- Ci può essere arte nei componenti di un videogioco
- 2006, a Miyamoto l'*Ordre des Arts et des Lettres*
- 2011, Smithsonian, *Art of Videogames*, con polemiche
- 2012, il MoMA acquisisce 40 videogiochi famosi

- Trame complesse a cui il giocatore partecipa
  - Da Zork ai titoli di Bethesda, CD Projekt, Rockstar G.
  - Da spettatori a protagonisti, azione ed effetti ma anche scelte, di trama, etiche ed emotive
  - La grande eredità dei giochi da tavolo e di ruolo
  - Una narrativa più coinvolgente di letteratura e cinema
- Ma c'è anche chi dice
  - Story in a (video)game is like a story in a porn movie, it's expected to be there, but it's not that important  
*John D. Carmack II, cofond. id Software (Doom, Quake...)*

## The Name of the Game is Death Race



THOUSANDS of pedestrians are killed and injured each year by cars, and safety experts everywhere are doing their best to diminish the slaughter.

In view of their dedication to saving lives, it's understandable that their concern is turning into outrage today — because of a popular new electronic game that actually teaches a motorist how to kill a pedestrian.

The game is called "Death Race," and it's one of the hottest-selling coin-operated games in the country today.

Manufactured by Exidy, Inc. in Mountain View, California, "Death Race" can now be found in amuse-

ment parks, arcades, taverns and pool halls. Here's how it works:

After inserting a quarter in the machine, two electronic, stick-figure pedestrians (called "Gremlins") zig-zag across a screen. The player depresses an accelerator and steers a wheel to run down a "Gremlin."

When a "Gremlin" is hit, a loud shriek is heard and the "Gremlin" is immediately replaced by a cross-shaped grave marker. The player then reverses his car, shifts back into a forward gear and proceeds to run down another "Gremlin."

Each "Gremlin" hit counts as 1 point. For 1 to 3 points, the player is a "Skeleton Chaser"; for 4 to 10 points, a "Bone Cracker"; for 11 to

20 points, a "Gremlin Hunter"; and for 21 or more points (are you ready for this?) an "Expert Driver."

Although "Death Race" is classified as "amusement," a lot of people are not amused by it.

Officer Richard Todd, a press spokesman for the Los Angeles Police Department: "A game like this does nothing to help road safety in this country."

Dennis Rowe, safety consultant for the Automobile Club of Southern California: "This game is sick, sick, sick. We're trying to teach drivers how to take evasive maneuvers on the road, like avoiding pedestrians."

"And here this morbid game comes along and encourages people to develop the opposite skill — how to hit people."

Gilbert Kitt, president of Empire Distributing, Inc., a large, arcade-game wholesaler in the Chicago area: "I've decided to stop distributing it. It's too macabre."

Marriott's Great America is a huge amusement park in Gurnee, Illinois. Group Director of Marketing Richard M. Quinn reports:

"... we removed the game right after Mr. Marriott received the first complaint. The game was purchased in a lot and we certainly agreed that it was not in keeping with the taste of our theme park."

Finally, the strongest and most informed indictment of "Death Race" comes from Dr. Gerald Driessen, behavioral scientist and manager of the National Safety Council's Research Department:

"From a psychological and behavioral viewpoint, the device is definitely negative. It capitalizes well on the basic principles of mechanical games by capturing one's attention through loud sound, the need for rapid decision-making and

immediate feedback of results.

"But 'Death Race' is not a 'game' and is certainly not humorous, as its promoters maintain.

"The objective is to hit symbols of persons and, in fantasy, crush and kill them. It is another gross example of commercial gain based on the aggressive and destructive tendencies in people. The shrieks emitted when a figure is hit add to its macabre tastelessness.

"One of its most insidious and probably unrecognized characteristics is its shift from imaginary visual images of destruction, as you have in TV violence, to actual behavioral actions taken by the player. The person is no longer just a spectator, but now an actor in the process of creating violence.

"Both skyjackings and robberies have followed rather closely the scripts of earlier TV dramatizations. The proportion of the audience so affected may be quite small, but some are affected in ways that lead to criminal action.

"Will this happen here, too, where there is even more direct involvement of specific sensory input, decision-making processes and muscular output?

"The device has gained popularity among children. As parents, can we not come up with ways of channeling the aggressive impulses of children into more constructive channels of expression?

"I think the device adds to an already widespread 'war and killing' mentality. It shifts a violent tendency into a form of behavioral action that carries no negative consequences for the actor.

"It plants the seed of disrespect for life, in all forms, not just in the area of motor vehicle operation and highway safety. It can potentially have negative effects on young and old, normal and psychopathic, drivers and nondrivers.

"I think the current device is gross, and shudder to think of what will be next if this one is not defeated by public opinion." ■

### Back Pain (continued from page 7)

is longer than the other, a frequent and unnoticed deformity in homo sapiens.

#### 5. Get support while driving and sleeping

Driving puts great strain on the back. In a recent Connecticut study, Dr. Jennifer Kelsey of Yale University found that drivers are more likely to suffer from an acute herniated lumbar disc than those who don't drive. Men who spend at least half their working day driving are three times more likely to develop a herniated disc than those who don't hold such jobs.

"The drivers probably do not have adequate support for their lower backs," Dr. Kelsey says. "They may also be affected by the continued vibration of the vehicle and the mechanical stress of starting and stopping. And their legs are extended to the pedals, instead of resting on the floor."

Back experts recommend that you sit with the small of your back pressed against the back seat cushion. A firm, 1½-inch-thick pillow behind the small of your back may help. Or you can buy an orthopedic back support for this purpose. The Air Force issues an air-inflated lumbar support for pilots that can be found in military surplus stores. It is excellent for driving.

Move the seat up so that you can reach the pedals and the steering wheel easily without straining forward. Keep your head and shoulders erect. If you lean forward, you'll develop pains in your neck and back.

Never drive more than one or two hours at a stretch. Get out of the car and move around every chance you get. Shrug your shoulders to loosen cramped neck and shoulder muscles. Sit on something such as a picnic bench, grasp your ankles and pull your head and shoulders down between your knees.

Proper back support is just as im-

portant in bed, since you spend almost a third of your life there. Get a really good, firm mattress. A soft mattress can be murder on your back.

When sleeping, you want your back to assume a relaxed, natural position. Experts often advise against sleeping flat on the stomach, because it may promote swayback or lead to a stiff neck. If you sleep on your back, use a thin pillow (or none) under your head, and place a pillow or folded blanket under your knees to relieve the constant pull on your lower back muscles. When sleeping on your side, use a pillow thick enough to keep your head in line with your spine.

#### 6. Relax

Tension is one of the most important causes of backache. A traffic jam, a blaring radio or TV, a crying baby, a tight schedule—your life is crowded with irritations that jangle your nerves and tighten your muscles. Emotional problems create tension, too—trouble at work or an unsatisfactory marital life.

Exercise can do wonders for tension. It's hard to worry when you're jogging or bicycling. And the physical exertion makes you breathe deeply, perks up circulation and loosens tight muscles.

Take a few minutes several times a day to practice relaxation exercises. Let your muscles go limp, with your head drooping forward. Lie down if possible and relax all the muscles of your body, starting at the feet and working up to the neck, the tongue and the forehead.

Creating the right mental attitude is important, too. Try to ignore petty aggravations, or look for humor in a situation. Concentrate your energies on one task at a time, and quit trying to do everything at once. Avoid situations that make you tense. If necessary, make changes in your life to root out major sources of tension. Not only will you have fewer backaches, you'll also live longer. ■

- Una caratteristica dei videogiochi
  - Luoghi del gioco, antagonisti, mosse, conseguenze
  - Schemi, trucchi e scorciatoie, dal *Furrer trick* in poi
  - Sorprese ed *easter eggs*
- Un dialogo sui generis
  - Da una parte sceneggiatori e programmatori
  - Fantasia e mestiere, quando intenzionali
  - Caso, quando bachi o conseguenze algoritmiche
  - Dall'altra i giocatori
  - Esperienza, studio e disciplina

- Argomento di discussione
- Spettatori, come gli altri sport
  - Gameplay footage
  - Walkthrough
  - Speed run
- Lavori (oltre che sviluppo)
  - Prove, recensioni, performance
  - Costruzione e vendita di oggetti e personaggi
- Mod, la più creativa delle esperienze di gioco

## □ Web serie

- Kickstarter (75k → 270k)
- 9+6+6 episodi, dal 2012 al 2014
- Rimontati in un film



## □ In un prossimo futuro

- Si studia per diventare giocatori professionisti
- Da “Fame” in poi, un genere classico
- Rivisitazione originale e di mestiere
- Con le sue chicche (una per tutte: Chiba e Hanzō)

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