

PACS and the Evolution of Microcomputing



1976

to



1983

Bill Degnan



1976 MITS Altair 8800b



- 1976 Successor to 8800
- 8080A microprocessor
- 2000 Khz (2 Mhz) clock speed
- 8 data bits, 8 I/O bits
- S-100 bus (Altair bus)
- BASIC, 8080 Assembly, CP/M

Before

Amateur Computer Group of New Jersey

- Founded by educator Sol Libes, 1975
- Based in Scotch Plains, NJ
- Community workshop environment
- Processor-based SIG meetings
- Teaching students about computers



Sol Libes

Before

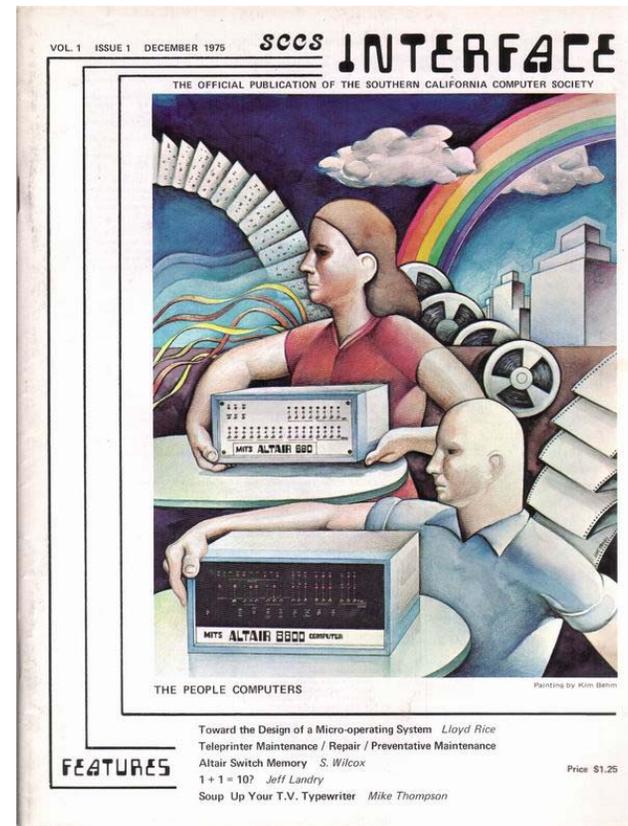


Delaware Valley Chapter of SCCS

- SCCS – Southern California Computer Society
- Largest chapter (?) outside of Southern California

“...But I think if you want to know where the most important area is in The country for members and microcomputer activities I'd say Philadelphia. It's not in California – It's Philadelphia.”

Creative Computing Sept-Oct 1976 Interview by David Ahl of SCCS President, Lou Fields.



NEW JERSEY COMPUTER FESTIVAL

Over 2K hobbyists are expected to attend the May 2nd Amateur Computer Convention in Trenton, NJ. The gathering, called the "Trenton Computer Festival," will include exhibits, technical talks, panel discussions, and (perhaps most important) ample opportunity for personal interchange. It will be held at Trenton State College.

It is sponsored by the TSC Digital Computer Society, and the Amateur Computer Group of New Jersey. For details, contact: Prof. Sol Libes, Union County Technical, Scotch Plains NJ 07076, (201) 889-2000; or Dr Allen Katz, Trenton State College, Trenton NJ 08625, (609) 771-2487.

Dr. Dobb's Journal March 1976

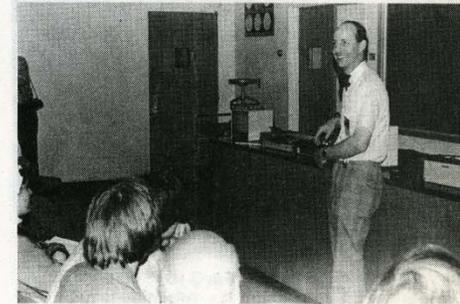
TRENTON COMPUTER FESTIVAL
T C F™

Trenton Computer Festival, Trenton State College

- 5-2-1976
- Founded by Prof. Sol Libes and Dr. Allen Katz
- “..first manufacturer-independent computer convention of national scope for computer hobbyists” - Sol Libes
- 45 exhibitors including MITS, IMSAI, Processor Tech., OSI, SWTPc, Cromemco, The Digital Group
- Attendance 1500
- Outdoor flea market – a “ham fest” for computers and components



MORE flea market



DR. ROBERT SUDING talked about, and demonstrated his new Z-80 microcomputer system.



DAVE AHL (Creative Computing editor) spoke on computer games.

Byte Jul '76

PACS is born

The Philadelphia Area Computer Society, PACS, was founded in June 1976 by Dick Moberg.

- The first PACS members were generally engineers and ham radio operators, plus mainframe software specialists
- Engineers using the microprocessor not as a computer, but as a simple electronic controller replacing dozens of discrete components
- No SIGS, just one main meeting centered around building a computer and sharing software.



DEC PDP 11/40



MOS KIM-1 and
SWTPC 6800



MITS Altair 8800

PACS PC'76

John Dilks' PC'76 was the first PC trade show officially attended by PACS



Processor Technologies Sol-20



IMSAI 8080

HIT THE BEACH ...

Personal Computing 76 Consumer Trade Fair

Atlantic City, N.J.
August 28th-29th

What its all about!
Software Development
Micro Computers
Hardware Development
Disc Memories
Computer Comparisons
Interfacing
Program Implementation
AMSAT
Computerized Music
Video Terminals
Kit Construction
Printers
Computer Games
Digital Tapes

- Seminars and Technical talks by leading electronic equipment manufacturers
- Major Exhibits from all over the country
- Demonstrations in many areas including Home and Personal Computing
- Door Prizes, Free Literature and Free Mementos
- All this plus Sun and Surf - Fun and Excitement - Relaxation and Leisure

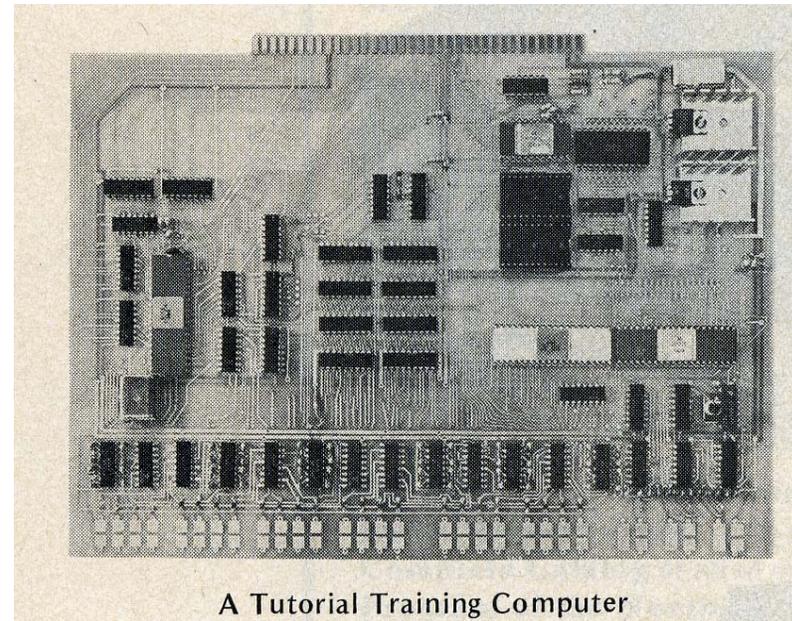
Weekend Fair admission \$5.00 advanced, \$7.50 at door
Admission includes Exhibits, Seminars

Write for FREE TRIP-KIT to Personal Computing 76 Fair Headquarters Shelburne Hotel-Motel
Box 1138 Boardwalk and Michigan Ave, Atlantic City, New Jersey 08404
EXHIBITION BOOTHS STILL AVAILABLE - CALL (609) 927-6950



DATAAC 1000

- A single board computer (SBC)
- Designed by PACS members Carmen DiCamillo and Roland James (Datac Engineering)
- Introduced many PACS members to microcomputers
- Featured in Byte Magazine July 1977



- Datac Engineering, POB 406, Southampton PA 18966.
- Two models, the tutorial version (\$185) and the fully populated version (\$345). Both were assembled, with power supply.
- 6502 processor
- Instantly usable computer with expansion capabilities
- Touch sensitive input keypads
- Documentation package



Early Contributors

- Will Mathys – MOS Technologies, helped PACS get 6502 chips
- Karl Amatneek - Kit Computing (KIM / MITS / IMSAI / Digital Group), helped organized first PACS meetings
- Mark Brindle - HAM Radio / Analog to Digital Technology
- Rob Smith – Cassette Interface
- Neil Lipson – Proposed First PACS Games Festival, Apple SIG, BASIC course.
- Mauchly, Eckert – Honorary Members / ENIAC
- Dick Moberg – In addition to serving as president he also was editor of the original Data BUS newsletter

PACS 1977

By mid 1977 PACS had one hundred members and new SIGs: 6800, 6502, 8080, 8008, Medical Application and Digital Group 8080A

PACS begins official involvement in the TCF Along with the IEEE Society, Princeton Chapter (May 1977)

Dawn of the Appliance Computers

Teletype and cassette still most popular for data storage

Northstar DOS and CP/M operating systems emerge

TRS-80 Model 1



Commodore PET 2001



Northstar Horizon
Image Courtesy OldComputers.net

PACS 1978

Began to depart from a primary function of sharing software and building component hardware.

New PACS members wanted to jump in with a working system, packaged software. More SIGs form.

PC'78 moves to Philadelphia Civic Center.

First PACS Music Show

Size of US market in 1978:

- 180,000 – 250,000 units
- 15,000 PET's
- 8-20,000 TRS-80's
- 13-27,000 Apple II's
- 75-100,000 – Everyone Else.



XITAN by Technical Design Labs, Princeton



Apple II, Sony Trinitron TV, and disk drives

PACS 1979

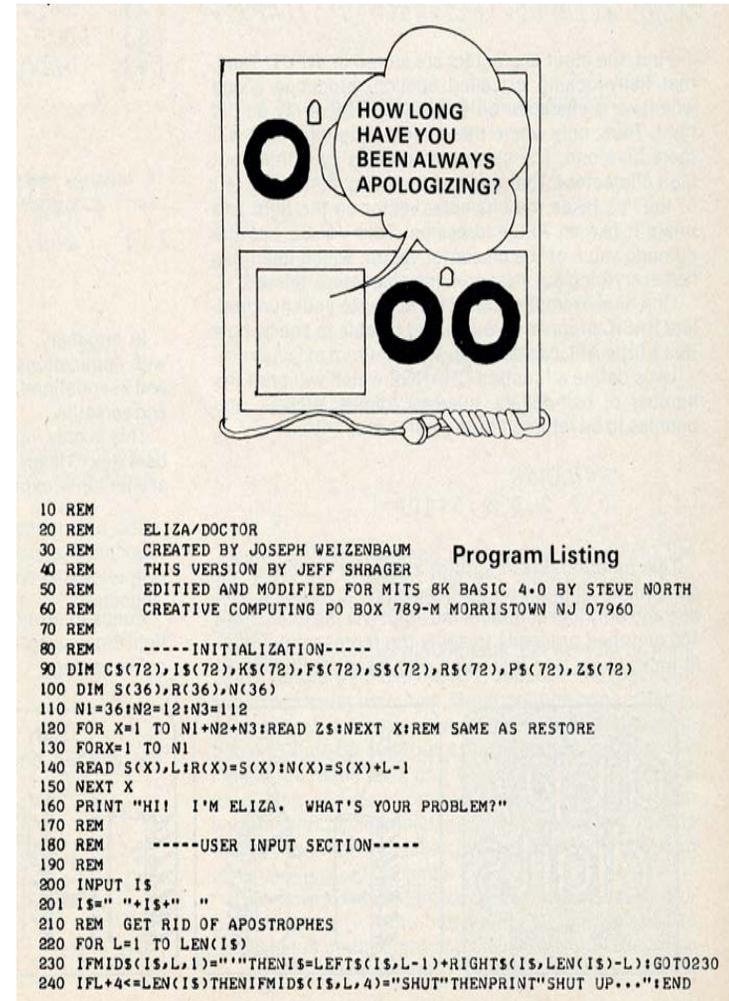
“Appliance Computer” users now outnumber original hardware hackers

Focus has migrated to platform-specific software, but main meeting was still center of interest

Many new SIGs form – OSI, TRS-80, PET, Starship Graphics, CP/M, Pascal, CAI

Arch Robinson “wiz kid” who developed his own graphics computer

Eric Hafler – New President in 1979



Eliza Code Listing for Altair 8K BASIC from Personal Computing Magazine



1978 - 1980

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P
CP/M2 on North Star
SBK Vers 2.23a D0
(C) 1981 Lifeboat Associates
A)DIR
A: PIP      CON : STAT   CON : FORMAT  CON : COPY    CON
A: W5U     CON : INSTALL CON : W5DH    CON : W5SGS   OVR
A: W5DVL1  OVR : W5DR   CON : W5TH    CON : W5TP    CON
A: TEST    BAK : TEST   DOC : W5DD    CON : BRIEFO  NOT
A: XDR0    NDT : XDR1  NDT : NDRIVE  CON
A)_
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CP/M Directory Listing

First Electronic Bulletin Board – CBBS, Ward Christensen

CP/M becomes dominant operating system for small business

Visicalc is introduced for the Apple II

Texas Instruments, Atari, Commodore, Sinclair and other manufacturers now offer computers that sell in department stores



Apple III



Atari 400

TI 99/4a



Commodore VIC-20



PACS-81



IBM PC 5150



Osborne Portable

- PACS - 400 members in mid 1981
- The Philadelphia Area Computer Show – 4000 attended
- Speakers included Dr. Prosper Eckert and Mrs. Kathleen Mauchly (ENIAC), Jim Finke (Commodore President)
- IBM PC and Osborne Portable Announced
- IBM PC and new software package-based SIGs are launched soon after.

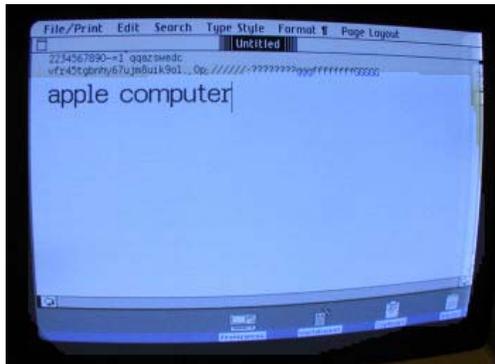


1982 - 1983



Commodore 64

- The 2nd and final PACS Philadelphia Area Computer Show 1982
- PACS Ham and Chips Flea Market, Aug '83
- Commodore 64, Apple Lisa, Franklin Ace
- New class of computers - Laptops



Apple Lisa Write



Tandy TRS-80
Model 100 Laptop



Franklin ACE



GRID Compass 1101



Apple Lisa

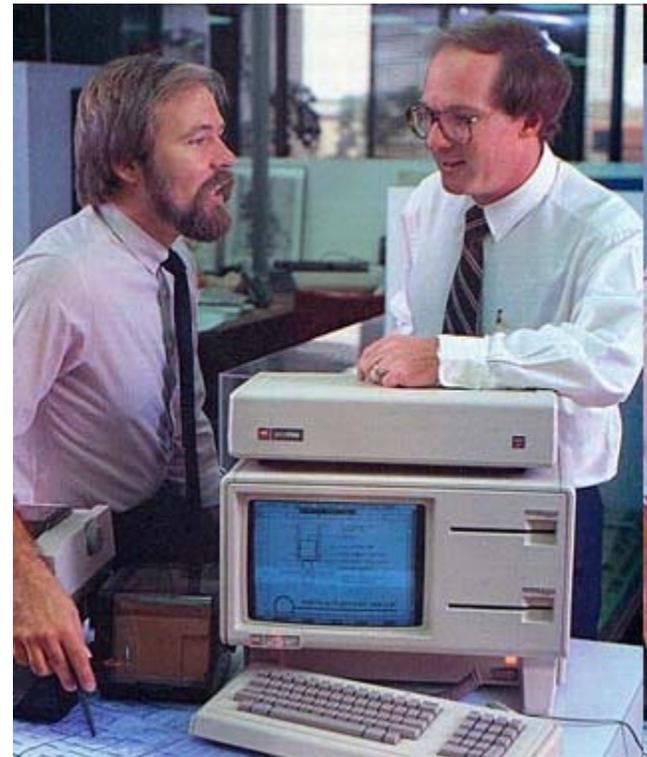
Proved the viability of certain concepts in a commercial product:

- graphics/mouse orientation
- desktop metaphor
- data-as-concrete-object metaphor
- shared user interface between programs

Clock Speed 5 MHz

68000 machine-language compiled from high-level Pascal source

Hardware slots for add-on peripheral cards
Ability to run more than one program simultaneously - Multitasking



Apple Lisa ad image courtesy OldComputers.net