

School, Work, and Beyond

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- *A talk about careers for the March 10, 2011 Murphy Scholars Dinner, McCormick School of Engineering and Applied Science, Northwestern University, Evanston, IL;*
- *Students want to hear about the choices I made and *why* I made them;*

Agenda

- Family context
- Undergraduate experience
- Summer jobs
- Full-time jobs
- "Retirement"
- Advice
- A few books
- Q&A

My Parents

- Meyer: musician, artist, hobbyist
 - Model trains
 - Heathkit™ oscilloscope, color TV (tubes)
 - Theramin, electronic music synthesizer (his own design)
 - Wood cabinets for speakers, hi-fi, TV
 - Guitars (acoustic, made 3 from scratch)
- Enid: research librarian, cook
 - Early dial-up services, BASIC programming class, gardening, sewing, knitting, cooking, ...

My Youth

- Embroidery, knitting, crochet, sewing
- Lego (<10 years old)
- Plastic model airplanes (9-12 years old)
- Model rockets (~50), competition (Apollo era)
- Wood shop, metal shop (middle school)
- Science fiction (Heinlein, Analog, ...)
- Typing (7th grade full year class)
- Mathematical Games column (SciAm; Life; RSA)
- Architectural drawing class (9th grade)
- Printing class (9th, offset press, photo layout)
- Programming class (10th grade)
- Journalism class, Constitutional Law (high school)
- UW computing center, consulting (\$3K ~1978)

1978-1982 @ NU

- Sargent, McCulloch, Sargent, 600 Lincoln
- BS CS, BS ApplMath (3.43 GPA, 3.98 major)
- FORTRAN, Pascal, COMPASS (CDC asm), PDP-8 asm, BAL (IBM 370 asm), COBOL, Concurrent Pascal, Simula, Lisp
- Tau Beta Pi, HP Senior Award
- Track (walk-on, 400m, two letters, 20 hours/week)
- Student Consultant @ VCC (10 hrs/week = 1,400 hours of helping people struggling with software)
- 1981 Foosball Champ (w/Mike Quon '82)
- Data General: I said no to March start
- Married Lisa Wissner (WCAS '85) in 1982

Summer Jobs

- --Fr: Keypunch operator at Sears (Seattle)
- --So: Repair facility (spare parts) for high-speed photo printers (Seattle)
- --Jr: File room for law firm (Seattle)
- --Sr: SYS/NUCC OS internals class, VCC consultant, "Cherub" ice cream serving & dish washing, football breakfast training table: OJ & serving

"—" is C pre-decrement operator, so "--Fr" means "before freshman year"



Circa 1978: IBM 029 Card Punch



CONTROL DATA CYBER 170/855 COMPUTER SYSTEM.

Full-time Jobs

- 1982-1983: IBM Corporation
- 1983-1985: Northwestern University
- 1985-1999: Microsoft Corporation
- 1999-2000: Amazon.com

6/1982-6/1983: IBM

- System Programmer Training: Ten week course on IBM MVS operating system internals
- "Pyxis" vector computer project
 - Wrote documentation for assembler using GML/ScriptVS (SGML -> HTML); 1 week course on vectorization at U. Michigan
 - Cancelled: Fujitsu IBM 370 vector attachment faster
- FORTRAN compiler build & test group
 - Ported 17Kloc PL/S design change request system to 7Kloc of REXX
- Used VM/CMS on 3270 "block mode" terminals connected to 3033 mainframe
- IBM 3081 (1980): 38MHz, 32-bit, 800K circuits, 32Mb RAM



Circa 1980: IBM 3278 terminal

6/1983-6/1985: NU

- Vogelback Computing Center (1964-2000)
- User Services group
- CALL, Full-Screen UI for VAX DCL, NUinfo
- CDC Cyber 170/730 (1980): 60-bit/18-bit 40MHz(?), <2Mb RAM, 700Kb ECS, 3Gb RMS, 7-track/9-track tapes, punched cards
- VAX 11/780 (1977): 32-bit 5MHz, 8Mb RAM
- IBM PC (1981): Intel 8086 16-bit 4.77MHz, 640K RAM, 160Kb floppy; Wordstar; a bit of C
- Apple Lisa; Apple Macintosh (1984): Motorola 68000 32-bit 8.0MHz, 128K RAM, 400K floppy
- Unix, Kermit, ftp
- MS Computer Science (GPA 3.91, min cutwidth linear layout problem, half-time)
- Considered PhD (in CA), but decided I wanted build things



1981: Original IBM PC

Enter today's date (m-d-y): 08-04-81

The IBM Personal Computer DOS
Version 1.00 (C)Copyright IBM Corp 1981

A>dir *.com

IBMBIO	COM	1920	07-23-81
IBMDOS	COM	6400	08-13-81
COMMAND	COM	3231	08-04-81
FORMAT	COM	2560	08-04-81
CHKDSK	COM	1395	08-04-81
SYS	COM	896	08-04-81
DISKCOPY	COM	1216	08-04-81
DISKCOMP	COM	1124	08-04-81
COMP	COM	1620	08-04-81
DATE	COM	252	08-04-81
TIME	COM	250	08-04-81
MODE	COM	860	08-04-81
EDLIN	COM	2392	08-04-81
DEBUG	COM	6049	08-04-81
BASIC	COM	10880	08-04-81
BASICA	COM	16256	08-04-81

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1981: IBM PC-DOS 1.0



1984: Original 128K Macintosh; 128K RAM; 400K floppy disk



1984: Macintosh System 1.1

6/1985-8/1999: Microsoft

- **1985:** 910 employees, \$140M revenue, pre-IPO
- IBM PC/AT (1984): Intel 80286 16-bit 6.0MHz, 2Mb RAM, 20Mb hard drive, EGA 640x350; C, x86 assembly language
- OS/2: MS-DOS emulation, file systems, MVDM, Visual Shell, printer drivers (team:6)
- Win32/DOS: Win32 api, proto (team:9)
- MS-DOS: v6.0 & 6.2, DoubleSpace, ScanDisk, commas, devicehigh, CD caching (team:8)
- Compression: CAB files, Quantum, Distribution Media Format (1.68Mb >> 1.44Mb), +\$60M/year (team:2)
- IE 1-3: 80-100 hrs/week; 30% mkt share, DOJ (team:60)
- Java VM: better than Sun, lawsuit (team:140)
- UI Prototype: Office 2007 has some of the ideas (team:8)
- MSN Internet Access: dial-up, Passport (team: ~60)
- Interviewed ~500 people, hired ~120 people
- **1999:** 31,575 employees, \$19.8B revenue, \$7.8B income

Microsoft Windows
MS-DOS Executive

Version 1.01
Copyright © 1985, Microsoft Corp.

Ok

Disk Space Free: 30024K
Memory Free: 303K

File View Special

A C D

C: \WINDOWS

ABC.T
BUILD
CALC
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CGA.L
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COMM
CONTROL.EXE
COURA.FON
COURB.FON
COURC.FON
EGAMONO.GRB
EGAMONO.LGO
EMM.AT
EMM.PC
HPLA
IBMC
JOYN
KERN

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Character Paragraph
Document

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terminal

RUNNING BATCH (.BAT) FILES
If you run a standard applicatio
should create a PIF file for the k

Page 1

1985: Windows 1.0

Microsoft Excel Promotional Edition

File Edit Gallery Chart Format Macro Window Help

REPORT.XLS

Record...
Run...
Start Recorder

Sales Report					Fiscal Year 1985		Fiscal Year 1986	
Last Three Month Sales					1985		1986	
	March	April	May	Yearly Total				
Widgets	723	768	467	3290	\$242,816		\$270,468	
Sprackets	582	388	533	2352	(\$242,816)		(\$270,468)	
Cogs	354	330	395	2026	47.3%		43.9%	

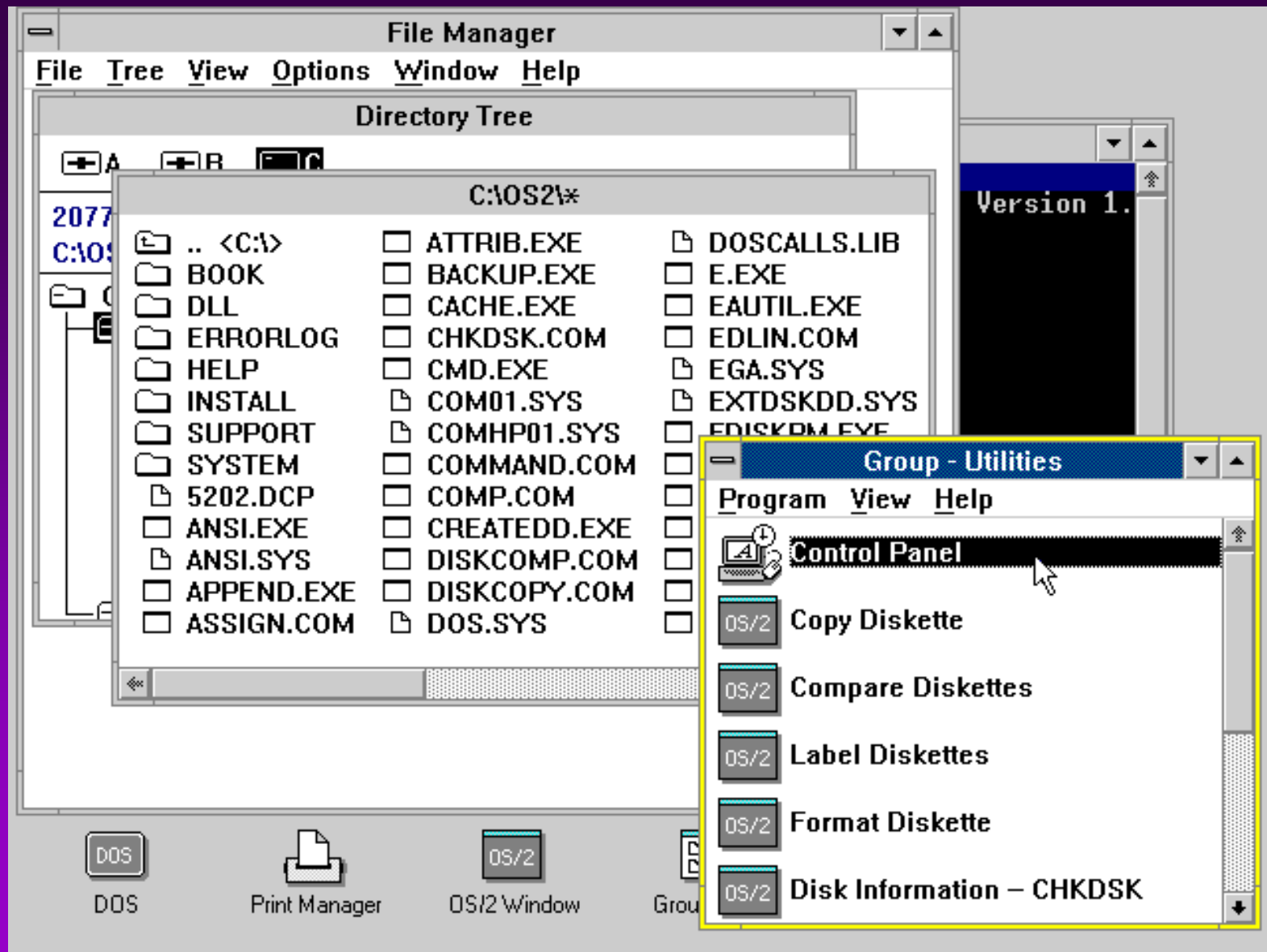
This Month's Sales

Widgets	678
Sprackets	600
Cogs	420

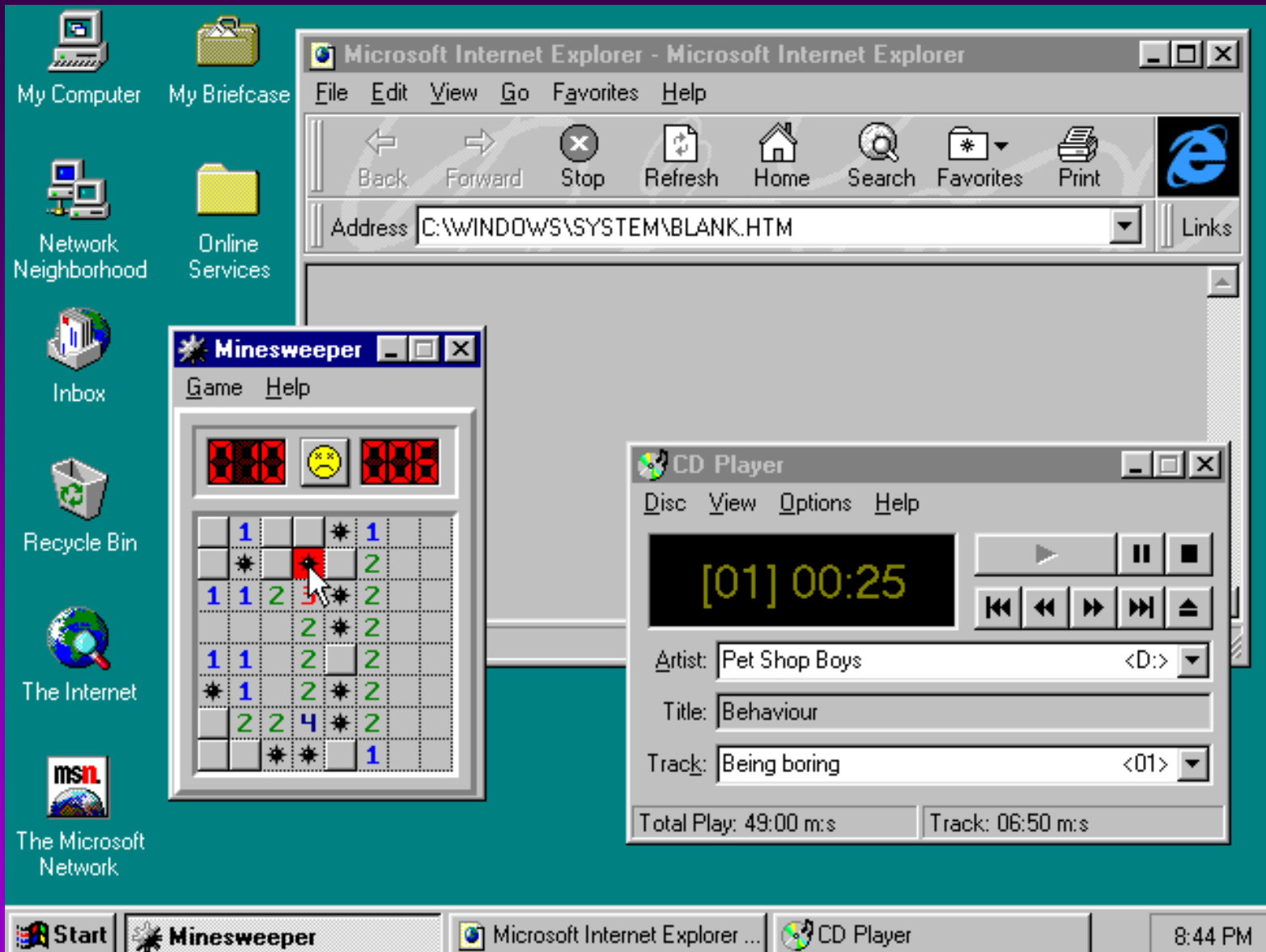
Chart5

Record new macro

1987: Excel on Windows 2.0



1991: IBM OS/2 1.3



1996: Windows 95 OEM Service Release 2 (OSR 2) with Internet Explorer 3.0, 8/1996

Other Microsoft highlights

- Set up first production LAN (1985)
- Led team that wrote Win32 spec
- Proposed FAT32 (flash drives, etc.)
- “The Web is the Next Platform” (1995): predicted ascent of Web and decline of Windows (www.slivka.com/theweb.pdf)
- 19 US patents
- 7 lawsuits: STAC patent, MS-DOS class action, IE name, ActiveX patent, DOJ, Java contract, WordPerfect Win APIs, ...

9/1999-6/2000: Amazon.com

- Wanted to work on “software as a service”
- Took undefined role reporting to Chief Information Officer
- Wrote “Amazon.com Key Challenges” after interviewing 40+ Amazonians in my first three weeks
- Answered customer emails (my fall 1995 order made me #10,272)
- Worked 3 days in Fernley, NV, distribution center
- 1/2000: ERP -- supply chain, dist center, cust svc, finance/HR/payroll/etc. (team: 165)
- Led campus recruiting, performance reviews

"Retirement"

- Volunteering in my kids' schools
- Seattle non-profit organizations
 - Garfield High School Foundation
 - Social Venture Partners
 - Seattle MESA
- NU Service
 - Trustee since 1998: Finance (Budget), Information Technology, and Alumni Relations & Development committees
 - Seattle Alumni Admission Council; WA new student party
 - EECS advisory board
 - NUvention Web class (Todd Warren '87, Mike Marasco)
- "Angel" Investing
 - TeachFirst (chapter 7 bankruptcy, AUSSIE bought assets)
 - Vizrea (successor sold to MSFT)
 - DreamBox Learning (sold to Netflix CEO Reed Hastings)

My Technology Today

- Windows SBS 2003, ASP/JScript, 2 webcams, Blackberry Enterprise Server, 3Mbps SDSL, PBX (3 lines), 3 wifi APs
- 26Tb disk, 11Gb RAM in 4 NAS boxes
- Nokia cell phone (1994); first Blackberry (2001)
- Blackberry Bold 9700: 480x360, 256Mb, 16Gb, 624MHz 32-bit CPU, GSM/WiFi 300Kbps(?)
- (1978 CDC: <3Mb, 3Gb, 40MHz, 300bps)
- Kindles, iPad, Garmin GPS, Canon

Advice

- Know yourself, your values
- Follow your passion
- Risk tolerance
- *Outliers*: hard work → success
- Organization size
- Organization culture
- Be aware of others, different values

A Few Books

- *Economics in One Lesson*: free markets
- *Elements of Style, 2nd Ed.*: tight prose
- *The Elusive Quest for Growth*: reward good behavior, rule of law, property rights
- *Mastering the Dynamics of Innovation*: 20 case studies of industries undergoing technological change
- *Crunch Mode*: rapid iteration
- *The Mythical Man Month*: small teams
- *Seeing Systems*: organizational behavior
- Also see: www.slivka.com/books/

Q & A

- www.slivka.com/2011-09-24.ppt
- www.slivka.com/BenCV/
- ben@slivka.com

- www.nu1982.org
- www.Banderooge.com

Thank You