



Experienced and creative engineer and educator with over a decade each in software engineering for technology startups and in computing education for public high schools. Exceptional record of product development and engineering management in real-time embedded systems, telephony, and automatic speech recognition — including as cofounder of two telecommunications companies. Inspiring teacher and mentor to over 2,000 students, focusing on open-ended problem solving, cross-curricular learning and collaboration, and computing from beginning to advanced; including physical computing and robotics.

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## WORK EXPERIENCE

<b>Brookline High School</b> <b>Teacher</b>	Brookline MA	2018–2023
<ul style="list-style-type: none"><li>Licensed Massachusetts Teacher — Digital Literacy &amp; Computer Science grade 5–12, Mathematics grade 5–12, Technology / Engineering grade 5–12, General Science grade 1–8.</li><li>Taught <i>AP Computer Science A</i> (Java) <i>CSAwesome</i> (3 years). Taught <i>AP Computer Science Principles Mobile CSP</i> (5 years). Taught <i>Exploring Computer Science</i> (3 years). Taught <i>Java Programming</i> (2 years). Taught <i>WWW Design</i> (2 years).</li><li>Taught <i>Autonomous Robotics</i> (4 years).</li></ul>		
<b>Coach / Mentor</b>		
<ul style="list-style-type: none"><li>Coached <i>Botball</i> (3 years).</li><li>Mentored students in entrepreneurship (<i>Technovation Challenge</i>, 4 years and <i>yCITIES mini-hacks</i>, 2 years).</li><li>Maintained website of resources, assignments, and grades.</li></ul>		
<b>MIT Playful Journey Lab</b> <b>Summer Journeyer</b>	Cambridge MA	2019
'Much like a fellowship program, <i>Journeyers</i> [are] members of MIT's newly established Playful Journey Lab, working on a combination of current lab projects and their own independent explorations... to create a community of practice where we build, play, experiment, and innovate in assessment and learning.'		
<b>EnglishCentral.com</b>	Lexington MA	2009
Developed language-modeling software for language-learning website. Held position of <i>Senior Software Engineer</i> .		
<b>Virtual Research Associates</b>	Weston MA	2007–2008
Developed software for ingestion and analysis of wire-service news articles for phase one of <i>Integrated Conflict Early Warning System DARPA</i> program. Held position of <i>Senior Software Engineer</i> .		
<b>Winchester High School</b> <b>Teacher</b>	Winchester MA	2005–2018
<ul style="list-style-type: none"><li>Taught various geometry and integrated mathematics courses in grades 9–12 (13 years).</li><li>Taught <i>AP Computer Science A</i> Java (12 years, plus summer school at <i>Phillips Academy Andover</i>). Taught <i>AP Computer Science Principles Mobile CSP</i> (2 years). Taught <i>On-Line Advanced Computer Science</i> (5 years). Taught <i>Exploring Computer Science</i> (1 year).</li><li>Taught <i>Engineering the Future</i> (5 years). Taught <i>Robotics</i> (5 years). Taught <i>WWW design</i> (1 year).</li></ul>		
<b>Coordinator</b>		
<ul style="list-style-type: none"><li>Held position of <i>Technology / Engineering Coordinator</i>. Had budgetary responsibility and leadership responsibility for five staff. (5 years)</li><li>Held position of <i>STEM Coordinator</i> for Winchester public schools. Promoted STEM teaching and learning K-12 (5 years).</li></ul>		
<b>Coach / Mentor</b>		
<ul style="list-style-type: none"><li>Coached <i>Winchester Robotics Team</i>, including <i>BotsIQ</i> (5 years), <i>NRL</i> (3 years), <i>Botball</i> (7 years), and <i>USFirst Tech Challenge</i> (1 year). Winchester Robotics Team was 2015 <i>Botball</i> global champions.</li><li>Mentored students in engineering (<i>Real World Design Challenge</i>, 5 years). Winchester RWDC team Flight 01890 was 2014 &amp; 2018 MA state champions.</li><li>Mentored students in entrepreneurship (<i>Technovation Challenge</i>, 4 years, <i>yCITIES mini-hacks</i>, 5 years, and Winchester Entrepreneurship Club, 2 years). Winchester Technovation teams were 2014 &amp; 2015 global finalists (as chronicled in the <i>CODEGIRL</i> documentary film).</li><li>Co-mentored <i>Winchester Computer Science Club</i> (3 years), including <i>ACSL</i>, <i>USACO</i>, and <i>WPI High School Programming</i> competitions.</li><li>Advised students in <i>Winchester Advisory Group</i> program (4 years).</li><li>Maintained <i>website</i> of resources, assignments, and grades.</li></ul>		

## SKILLS

Python	Java	embedded systems
HTML5 / CSS3 / JavaScript	continuous integration	
entrepreneurship	project-based learning	
computing education	robotics education	STEM

## EDUCATION

<b>University of Massachusetts Lowell</b>	Lowell MA	2011
Masters of Education in Curriculum and Instruction: Mathematics, December, 2011.		
<b>Massachusetts Institute of Technology</b>	Cambridge MA	1986
Bachelor of Science in Electrical Engineering, June, 1986. Implemented a computer graphics program in PL/I to age facial images for Architecture Machine Group (now called the Media Lab). Thesis titled <i>Explorations in Combinatorial Dynamics</i> , an evaluation of the Novix NC4000 Forth microprocessor for experiments in Information Mechanics. Computer languages studied: LISP, C, PL/I, Pascal, Algol, FORTRAN, and mini and microcomputer assembly languages. Humanities concentration in music.		

## PROJECTS

dcpetty.github.io	Github pages for dcpetty.
psb-david-petty.github.io	Github pages for psb-david-petty.

## AWARDS

<b>Massachusetts Technology Leadership Council Distinguished Leadership Award.</b>	2014
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## PATENTS

United States Patent No. 4,447,676. Harris, Jackson, and Petty. <i>Automatic dialer for telephone network access control.</i>	1984/06/08
United States Patent No. 7,003,456. Gillick, et al. <i>Methods and systems of routing utterances based on confidence estimates.</i>	2006/02/21

## AFFILIATIONS

Member of Association for Computing Machinery and member of *Institute of Electrical and Electronics Engineers*.

Member of ANS X3J14 technical sub-committee for standardization of the Forth development environment. Also member of Forth Standards Team, precursor to X3J14 and promulgator of FORTH-83. Former Member of Board of Directors of Forth Interest Group. Ten-year participant in Forth Modification Laboratory. Six-year participant in Rochester Forth Conference.

Founding participant in Knowledge Home initiative.

Member of Massachusetts Department of Elementary and Secondary Education (DESE) Curriculum Framework for Digital Literacy and Computer Science (DLCS) Review / Implementation Panels (2015–2017) — author of *Massachusetts Curriculum Framework: DLCS K-12*. Member of DESE DLCS MassCore Working Group (2018). Co-author of *Massachusetts DLCS Curriculum Guide* (2021–2023). Member of Massachusetts Tests for Educator Licensure (MTEL) DLCS Content Advisory Committee (2021–2022).

Member of Computer Science Teachers Association (Co-President of CSTA Greater Boston Chapter, 6 years), National Council of Teachers of Mathematics, International Technology and Engineering Educators Association.

**Teacher**

- Taught grade 8 mathematics using [Connected Mathematics Program](#); pioneered lesson design and teaching with interactive white board.
- Conducted grade 7 homeroom; taught weekly grade 7 math study skills class; served as advisor to grade 7 students; facilitated weekly buddy groups; was active member of middle-school cluster.
- Developed middle school parent communication database; maintained [website](#) of assignments and grades.
- Assisted middle-school science teacher with grade 7 & 8 science classes (3 semesters).

**MassBay Consulting, LLC**

Cambridge MA 2003–

Co-founded consulting company developing embedded software, websites, and mobile apps. Held position of *Managing Director*.

**ScanSoft®† (née Lernout & Hauspie† (née Dragon Systems))**

Burlington MA 1996–2003

Held position of *Director of Development, AudioMining™*. Directed development of ScanSoft's AudioMining™ product line, including successful semi-annual releases of Dragon MedialIndexer™ and AudioMining Development System. Was instrumental in transfer of L&H AudioMining assets to ScanSoft. Supervised work of ten developers and co-directed product delivery team.

Held position of *Manager, Telephony Development*. Managed Dragon's efforts in over-the-telephone speech recognition — applying Dragon's dictation engine to short-message-service dictation. Supervised work of four engineers.

Held position of *Senior Telephony Engineer* in Dragon's Portable Products Group. Developed distributed, embedded dictation system. Computer languages used: [Python](#), [Java](#), [C++](#), [UML](#).

† On 2000/06/07, Dragon was [acquired](#) by L&H.

‡ On 2001/12/12, L&H was [acquired](#) by ScanSoft.

- On 2005/05/09, ScanSoft merged with Nuance.
- On 2022/03/04, Nuance was [acquired](#) by [Microsoft](#).

**Previous Work Experience**

Cambridge MA 1980–1996

- During and after undergraduate work at MIT, was a founder of two telecommunications industry start-ups — Telelogic and digiTel.
  - Designed, implemented, and oversaw software for over 400,000 Telelogic trunk-side autodialers delivered to MCI, Sprint, and the other top interexchange carriers. Varied roles included directing engineering, providing architecture and product design, developing embedded software.
  - For digiTel, and as an independent consultant, worked on telecommunications products for the Norwegian and Swedish PTTs, Siemens, AITRC, and the manufacturer of the Telelogic dialer. Varied roles included directing engineering, managing consultants, and effecting liaison with offshore manufacturing companies in Asia.
- For Ring Medical (which has since become the “nation's largest... medical-only physician answering service,” [NotifyMD](#)) co-developed company's line of physician-answering-service systems.
- As an independent consultant: developed and distributed software upgrade for trunk-side autodialer Cambridge Software Project, Inc., Cambridge MA; redesigned and maintained answer detection system for Homisco, Inc., Melrose MA; designed and implemented digital electronics and software for Siemens videotex decoder infrared keyboard for digiTel, Inc., Cambridge MA; developed dual cable broadband network tester in conjunction with ASAtech, Inc., Pelham NH; adapted trunk-side autodialer software for combination telephone and cable television service for Twixtel Technologies, Inc., Framingham MA and GEM Electronics, Inc., Chicago IL.

## REFERENCES

Available upon request.