DAVID C. PETTY

EDUCATOR / ENGINEER

Experienced and creative engineer and educator with two decades each in software engineering for technology startups and in computing education for public high schools. 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. 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.

<dcp@appinventorfoundation.org> +1.772.444.2710 Cambridge MA USA in/dcpetty @dcpetty https://dcpetty.dev/

WORK EXPERIENCE

App Inventor Foundation Alamo CA 2024–

'Our mission is to empower people across the globe to create apps that improve their lives and uplift their communities.' Held position of *Education Program Manager*.

Educational Consultant Cambridge MA 2023–

Curriculum Developer

- Adapted and developed *Python+Data* curriculum as part of *Innovation Pathways for Data Careers* (IPDC) data science curricula for Education Development Center (EDC), Waltham MA.

Educator

- Taught workshop on Github for educators during CSforMA *Professional Learning Institutes*, Devens MA.

Brookline High School Brookline MA 2018–2023

Teacher

- Licensed Massachusetts Teacher — Digital Literacy & Computer Science grade 5–12, Mathematics grade 5–12, Technology / Engineering grade 5–12, General Science grade 1–8.
- Taught *AP Computer Science A* (Java) CSAwesome (3 years). Taught *AP Computer Science Principles* Mobile CSP (5 years). Taught *Exploring Computer Science* (3 years). Taught *Java Programming* (2 years). Taught *WWW Design* (2 years).
- Taught *Autonomous Robotics* (4 years).

Coach / Mentor

- Coached Botball (3 years).
- Mentored students in entrepreneurship (Technovation Challenge, 4 years and yCITIES mini-hacks, 2 years).
- Maintained website of resources, assignments, and grades.

MIT Playful Journey Lab Cambridge MA 2019

One of five Summer Journeyer educators. 'Much like a fellowship program, Journeyers [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.'

EnglishCentral.com Lexington MA 2009

Developed language-modeling software for language-learning website. Held position of *Senior Software Engineer*.

Virtual Research Associates Weston MA 2007–2008

Developed software for ingestion and analysis of wire-service news articles for phase one of Integrated Conflict Early Warning System DARPA program. Held position of *Senior Software Engineer*.

Winchester High School Winchester MA 2005–2018

Teacher

- Taught various geometry and integrated mathematics courses in grades 9–12 (13 years).
- Taught *AP Computer Science A* Java (12 years, plus summer school at Phillips Academy Andover). Taught *AP Computer Science Principles* Mobile CSP (2 years). Taught *On-Line Advanced Computer Science* (5 years). Taught *Exploring Computer Science* (1 year).
- Taught *Engineering the Future* (5 years). Taught *Robotics* (5 years). Taught WWW design (1 year).

SKILLS

project-based learning computing education

robotics education STEM curriculum design Python

Java embedded systems HTML5 / CSS3 / JavaScript

continuous integration entrepreneurship

EDUCATION

University of Massachusetts Lowell Lowell MA 2011

Masters of Education in Curriculum and Instruction: Mathematics, December, 2011.

Massachusetts Institute of Technology 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 *Explorations in Combinatorial Dynamics*, 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.dev Github pages for `dcpetty`.

AWARDS

Massachusetts Technology Leadership Council 2014
Distinguished Leadership Award.

PATENTS

United States Patent No. 4,447,676. Harris, Jackson, and Petty. *Automatic dialer for telephone network access control*. 1984/06/08

United States Patent No. 7,003,456. Gillick, *et al.*. *Methods and systems of routing utterances based on confidence estimates*. 2006/02/21

AFFILIATIONS

Member of Association for Computing Machinery and member of Institute of Electrical and Electronics Engineers (former).

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) — co-author of *Massachusetts Curriculum Framework: DLCS K-*

Coordinator

- Held position of *Technology / Engineering Coordinator*. Had budgetary responsibility and leadership responsibility for five staff. (5 years)
- Held position of *STEM Coordinator* for Winchester public schools. Promoted STEM teaching and learning K-12 (5 years).

Coach / Mentor

- Coached Winchester Robotics Team, including BotsIQ (5 years), NRL (3 years), Botball (7 years), and USFirst Tech Challenge (1 year). Winchester Robotics Team was 2015 Botball global champions.
- Mentored students in engineering (Real World Design Challenge, 5 years). Winchester RWDC team Flight 01890 was 2014 & 2018 MA state champions.
- Mentored students in entrepreneurship (Technovation Challenge, 4 years, yCITIES mini-hacks, 5 years, and Winchester Entrepreneurship Club, 2 years). Winchester Technovation teams were 2014 & 2015 global finalists (as chronicled in the CODEGIRL documentary film).
- Co-mentored Winchester Computer Science Club (3 years), including ACSL, USACO, and WPI High School Programming competitions.
- Advised students in Winchester Advisory Group program (4 years).
- Maintained website of resources, assignments, and grades.

John M. Tobin School Cambridge MA 2004–2005

Taught grade 8 Connected Mathematics Program. Assisted middle-school science teacher with grade 7 & 8 science classes (3 semesters).

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 MediaIndexer™ 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 for 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.

12. Member of DESE DLCS MassCore Working Group (2018). Co-author of *Massachusetts DLCS Curriculum Guide* (2021–2023) and *Massachusetts K–12 Computer Science Curriculum Guide* (2017). 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; co-founder of CSTA New England Regional Conference, 2017–), National Council of Teachers of Mathematics, International Technology and Engineering Educators Association.

Member of Brookline Educators Union, Massachusetts Teachers Association, and National Education Association.

REFERENCES

Available upon request.

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