John William Lynch, Ph.D.

Software Developer, Technical Curriculum Developer, & Instructor
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PROFESSIONAL SUMMARY

I am a STEM technical curriculum developer, STEM instructor, and full-stack software engineer with a Ph.D. in Engineering and Computing Education and B.S./M.S. degrees in Computer Science. I have created and delivered slides, videos, hands-on labs, assignments, exams, and full courses for technical and non-technical audiences, independently built and maintained learning management systems, and published peer-reviewed research in engineering, AI, and education venues. I am driven to design accessible learning experiences that improve learners' skills and retention, and I have a consistent record of turning deep technical subject matter into well-sequenced learning for varied audiences. I bring three strengths that cover the full course and curriculum lifecycle: technical depth in STEM disciplines, primarily computer science, experience building and leading teams with clear communication, and research training to evaluate learner outcomes and data and improve courses systematically. I strive to create the best learning experiences for all parties involved in the educational process, learners, teachers, and institutions, and I am deeply committed to my belief that computer science is for all.

CORE SKILLS

• **Learning Strategies / UDL:** andragogy and pedagogy research and design	• **Curriculum & Instructional Design:** courses for technical and non-technical audiences
• **Teaching:** higher ed, K-12, veterans, incarcerated, and adult learners	• **Platform & Delivery:** full-stack web/mobile, REST APIs, LMS design, learner analytics, Git
• **Languages:** Python, Java, C#/C++, Swift, Scala, Kotlin, SQL, JavaScript/TypeScript, HTML/CSS	• **AI/ML:** applied research on LLMs as instructional tutors; AI-assisted content development
• **Educational Tools:** Canvas, Blackboard, Articulate Reach 360, Adobe Premiere Pro, Microsoft 365, Apple suite	• **Research Methods:** mixed-methods, survey and scale design, factor analysis, rubric validation
• **Leadership:** team supervision, TA training, grant budgets, cross-department collaboration	• **Publications:** engineering education research in journals and conference venues

EDUCATION

Ph.D., Engineering and Computing Education, University of Cincinnati 2026

M.S. & B.S., Computer Science and Software Development, DePaul University 2020 & 2019

TEACHING & CURRICULUM DEVELOPMENT

Taught 15+ courses at six institutions: University of Cincinnati, DePaul, Northwestern, Illinois Institute of Technology, San Diego Global Knowledge University, and Computer Systems Institute.

Developer & Adjunct Instructor, CS2024C: Data Structures & Algorithms, University of Cincinnati 2024
- Designed the course around core data structures, algorithm strategies, and performance metrics with real-world applications.

Instructor, CS4092: Database Design and Systems, University of Cincinnati 2024, 2026
- Taught relational algebra, ER models, SQL, normalization, indexing, and concurrency in hybrid sessions; students built a working application in teams of four.

Developer & Instructor, Application Development with Swift Playgrounds, Northwestern University 2021 – 2022
- Created a six-week iPad course for adult beginners; students designed and presented a four-screen app solving a problem in their community.

Developer & Instructor, MDI117–120 Mobile Development (Android), San Diego Global Knowledge Univ. 2026
- Lead the final courses (automated testing, JUnit, UI/UX and API testing) and advise capstones for veterans and non-traditional students.

Graduate Teaching Assistant & Tutor, CSC241/242 Intro CS I/II, DePaul University 2019 – 2020
- Led weekly labs of 15-20 students and reported comprehension trends and areas of weakness to professors, who used them to rework upcoming lessons; tutored undergraduate and graduate students across the CS curriculum.

Adjunct Instructor, Intro CS II, Data Structures I, Java Workshop, DePaul University 2021 – 2022
- Taught Intro CS to first-year computer science and accounting students, plus Data Structures and a Java workshop (Eclipse, sorting algorithms); wrote labs, assignments, lectures, tutorial videos, and exams for in-person, online, and asynchronous formats.

Graduate Teaching Assistant, ENED 1100/1120 Engineering Design Thinking, University of Cincinnati 2022 – 2023
- Oversaw multiple ~70-student sections, supervised 3-4 undergraduate TAs, taught coding sessions (Python, MATLAB, LabVIEW), and coordinated TA professional development.
- Served as impromptu lead for hundreds of students at the end-of-semester demonstration, managing the check-in application for stations, tasks, and grading.

Instructor, UI Design, Web Styling, Image Processing, SEO, Computer Systems Institute 2021 – 2022
- Developed course materials, video instruction, and demonstrations for non-traditional (foreign, first-generation) students with varied coding experience.

Instructor, ITMD 511 Application Development Methodologies, Illinois Institute of Technology 2021

- Taught students in China at Beacon Education School (an IIT satellite); developed exams and a prototype project for student portfolios.

WORK EXPERIENCE

Full-Stack Developer, Spatial Visualization Online Learning Management System (Independent) Spring 2023 – Present

- Designed, built, and deployed a full-stack platform (database schema, REST API, frontend) with teacher and student accounts, interactive content, timed auto-graded quizzes, course creation, and in-app surveys for real-time feedback.
- Built an administrative backend that tracks learner and educator engagement and auto-generates reports for data-informed revisions to instructional content.

Full-Stack Developer, Moanage (Independent) Spring 2026 – Present

- Designed and deployed an hour-tracking platform for Chicagoland contractors and architects: projects, phases, budgeting, multi-user time tracking, and a forecasting system that compares similar projects. Demos at lynchjohn98.com.

Computer Science Curriculum Specialist, Northwestern University (CECSE) Fall 2021 – Winter 2022

- Supported Chicagoland educators teaching CS fundamentals in Swift, helping create and implement lectures, labs, quizzes, and assignments under tight deadlines.

Web Developer Intern, Covert Nine; Assistant Tutor, Gear UP / DePaul College Connect 2018 – 2019

- Built and maintained client WordPress sites (JavaScript, jQuery, HTML/CSS) and wrote a test report for a new block system; tutored high schoolers in Scratch, WordPress, and introductory PHP.

RESEARCH & GRANTS

- Lead researcher on a mixed-methods dissertation study (n=90) of spatial visualization and technical communication; co-developed validated rubrics and individually coded all sketches, reports, and gesture data. Synthesized typically unassociated domains of research and developed a validated theoretical framework that can be applied to similar research in the future.
- Author of 10+ peer-reviewed publications and presentations on CS learning tools, notional machines, and instructional design, including AI language models as personalized tutors (2026 ASEE); presented at ASEE, ASEE North Central, FIE, and SEFI.
- Developed and submitted an Office of Naval Research white paper (with Dr. Sheryl Sorby) for a community of practice for Military and Naval CS students; not funded, but gained federal proposal-writing experience.
- Conducted a systematic review of mixed-methods research in computing education and a narrative study of CS attrition, finding persistent isolation and reliance on peer support among CS students.
- Introduced Parsec, a synchronous collaborative coding tool, to an introductory engineering course and evaluated it with a survey scale built through exploratory factor analysis (Bandura's self-efficacy theory); results showed positive effects on learning and programming skills.
- Co-developed AI persona simulations of classroom peers for online learning, and researched notional machines and unplugged CS activities for introductory programming.

Selected publications

- Lynch & Raju (2026). The Effectiveness of AI Language Models as Tutors for Spatial Visualization Training. ASEE Annual Conference.
- Lynch & Sorby (2026). The relationship between spatial visualization skills and sketching. Engineering Design Graphics Journal, 89.
- Sorby et al. (2026). Educating the Next Generation of Engineers: Spatial Thinking Is Key to Their Success. Education Sciences, 16(6).
- Lynch (2021). Using Notional Machines to Reinforce Student Comprehension of Lists in Introductory Programming.

LEADERSHIP & SERVICE

President, Graduate Student Association, Dept. of Engineering & Computing Education, University of Cincinnati 2024 – 2026

- Represented the department in graduate governance; managed group grant budget awards from submission through post-award reporting; approved research travel and funding awards; helped run a seminar exchange with other engineering education programs; built programming with the Colleges of Engineering, Education, and Medicine.

President, ASEE Student Chapter, University of Cincinnati 2024 – 2026

- Organized weekly faculty and member meetings; led recruitment, elections, and succession planning; represented the chapter at national ASEE conferences; ran K-12 and undergraduate outreach events.

Volunteer Instructor, Stanford Code in Place; Persevere Now 2021

- Led a Python/Karel section for highschoolers part of Stanford summer programs, and mentored incarcerated learners in full-stack web development.

HONORS

Graduate Community Award, University of Cincinnati (2026) | Fellow, Center for Excellence in Computer Science Education, Northwestern (2021) | CITI Responsible Conduct of Research (2022) | Education Week certificate, Social-Emotional Learning (2021) | Learners Edge CEUs, Students and Teachers and Anxiety (2021) | DePaul Admission Partnership Program Scholar and Computer Science Society Member (2017–2019) | Phi Theta Kappa (2017)