



# Empowering Novice Developers in Radiology Informatics: Chat-Oriented Programming

**Patricia Wu, MD,** Visiting Postdoctoral Research Fellow, Beth Israel Deaconess Medical Center Mohamad Hotait; David Kwan; Seth Berkowitz, MD

### Background/Problem Being Solved

Radiology informatics often requires software development skills for facilitating research and clinical workflows, posing challenges for those without technical expertise. This project explored how a researcher with no prior coding experience leveraged AI assistance to create a fully functional application.

#### Intervention(s)

Using a Large Language Model chatbot as a coding assistant, a functional web application was developed as a reading worklist for a research study. The application listed hyperlinks to a custom OHIF image viewer for participants to complete a research task. Upon completion of the task, results were saved to a database. The chatbot was used to create interface code to query a pre-existing API to display unread studies to the user. The process involved crafting clear and specific prompts to guide AI output, using the chatbot for debugging, and integrating the web application in the existing infrastructure under the supervision of an experienced mentor.

#### Barriers/Challenges

The primary challenge was the lack of prior coding experience. Deploying the code created by AI required knowledge of existing infrastructure.

#### Outcome

The project culminated in the successful deployment of a fully functional, user-friendly web portal for a reader study. The initiative demonstrated that individuals without traditional coding expertise can effectively contribute to informatics projects with the assistance of AI tools and proper mentorship.

## Conclusion/Statement of Impact/Lessons Learned

This experience highlights the transformative potential of AI-assisted development and the importance of mentorship in bridging skill gaps, empowering researchers from diverse backgrounds to engage in and contribute to the field of radiology informatics. Tutorials, videos, technical forums, and search engines have historically guided interested students to learn programming skills. Large language models are a massive paradigm shift for motivated individuals to quickly create functional software prototypes. Chat-oriented programming may also have value in increasing the productivity of experienced developers.

## Figure(s)

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Figure 1. Using natural language prompts with the chatbot to write codes for specific functions in the web application.

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**Figure 2.** The result: a user-friendly web application for displaying a reading worklist, where checkmarks appear after a task has been completed by the participant.

#### Keywords

Applications; Artificial Intelligence/Machine Learning; Clinical Workflow & Productivity; Educational Systems; Imaging Research; Organizational & Professional Development