

XERXEZ SOLUTIONS
DEVELOPMENT – TRAINING – RESEARCH

Project Name: Generative API to generate research report using Prompt Engineering

ABSTRACT: The introductory programming sequence has been the focus of much research in computing education. The recent advent of several viable and freely available AI-driven code generation tools presents several immediate opportunities and challenges in this domain. In this position paper we argue that the community needs to act quickly in deciding what possible opportunities can and should be leveraged and how, while also working on how to overcome or otherwise mitigate the possible challenges. If the effectiveness and proliferation of these tools will continue to progress rapidly, without quick, deliberate, and concerted efforts, educators will lose advantage in helping shape what opportunities come to be, and what challenges will endure. With this paper we aim to seed this discussion within the computing education community.

INTRODUCTION: Recent months have seen the release of several AI models that represent step changes in their respective domains. Text-to-image models such as OpenAI’s DALL-E 2 and Midjourney1 (see Figure 1) are revolutionizing how images are created, with the latter being called “the greatest artistic tool ever built, or a harbinger of doom for entire creative industries”. In July 2022, it was announced that DeepMind’s Alpha Fold predicted the structure of nearly all 200 million proteins known to science and is making them freely available [13]. Also in the last year, OpenAI and Deep-Mind – among others – have released groundbreaking models that generate computer code. The model for use so far is that most of these tools will cost money to use professionally but often be free for educational use and to students. It is safe to assume that some computing students are already using AI code completion to generate large chunks of code that could be used in various ways during the completion of assignments.

The introductory programming sequence has been the focus of much research over several decades and the challenges of programming at the level required of a first-year computing student have been debated extensively. One sticking point is that students should gain extensive practice writing code through dozens of small exercises checked against automated assessment tools. However, students face numerous barriers. With the recent advent of several viable AI-driven code

generation tools, ‘writing’ code that will suffice to pass traditional first-year programming assignments and even exams seem to have become much easier.

What does an introductory computing course look like when we can assume that students will be able to easily auto-generate code solutions to their lab and assignment tasks by merely pasting problem descriptions into an AI-powered tool? Further, how will this affect the delivery of computing curricula in general? Our view is that these tools stand to change how programming is taught and learned – potentially significantly – in the near-term, and that they present multiple opportunities and challenges that warrant immediate discussion as we adapt to the use of these tools proliferating.

RELATED WORK & EXISTING PROBLEM: Any new tool, when effective and widely available, poses opportunities for learning. Handheld calculators have been ubiquitous in mathematics education since the 1980s. A study in (US) grades K-12 statistically analyzing 524 effects from 79 separate studies recommended the use of calculators in all mathematics classes from kindergarten (approx. age 5) on, including in testing situations for grades 5 (approx. age 10) and up. It remains to be seen if AI-powered code generation will follow a similar path.

Opportunities noted by the developers of Codex include “the potential to be useful in a range of ways” including: “help onboard users to new codebases; reduce context switching for experienced coders; enable non-programmers to write specifications; have [such tools] draft implementations; and aid in education and exploration”. The developers of Alpha Code also see obvious opportunities in such tools, suggesting “the potential for a positive, transformative impact on society, with a wide range of applications including computer science education, developer tooling, and making programming more accessible”.

TECHNOLOGY WE COVER:

1. Python Programming
2. Machine Learning/Deep Learning/Segmentations
3. Django – Front End
4. PostgreSQL – Database
5. MLOps using MLFlow – Model Orchestration
6. Github Action - CI/CD Pipeline
7. DVC for Data Tracking
8. DagsHub
9. Docker and Kubernetes

OUR OFFERING:

1. Complete Implementation of Project
2. Training and Project Deployment on local system
3. Project Completion Certificate
4. Paper Publication in IJera International
5. Project Report
6. Xerxez T-Shirts

DISCLOSURE:

1. Students must prepare the PPT for demonstration.
2. 50% Advance and 50% during project submission.
3. Once Payment is done, cannot be refundable.

CONTACT US

WHATSAPP: 9164315460

Email: info@xerxez.in