Scaling Humans with Artificial Intelligence (Shai)

ReFactoring Legacy Code Using AI

NCI Shai®, Scaling Humans with Artificial Intelligence, is empowering organizations to meet their mission by deploying AI-powered solutions using proven development methodologies. Our AI solutions help empower your workforce to scale and reach their human potential and focus on higher-value work.

Code refactoring using AI is a machine learning process that rewrites existing code from legacy languages like COBOL to newer languages like Java with minimal human intervention, as well as ensure existing and new code are completely secure and better documented. Using Holonic Technologies’ CodeIntent™ semantic learning platform, NCI engineers can correct, modernize and optimize any project that is written in any language, running on any stack.
Case Study

Code Refactoring

Using the proprietary CodeIntent AI platform, legacy code is semantically and automatically modernized at a fraction of the cost and time on any development environment. Your programmers can continue developing on legacy systems while the AI continuously modernizes those changes, preventing code-freeze during the process.

UNIX to Microsoft Case Study

Challenge
A customer with approximately 200,000 lines of code written in C with no dependencies used a Common Gateway Interface (CGI) on a stand-alone UNIX system. Our team identified various issues during the analysis phase of the project, including the discovery of a database locking flaw that could undermine the integrity of the customer’s data. The customer requested the code be converted within a year to meet time-to-market requirements while focusing immediately on data integrity for in-production code.

Solutions
Using the CodeIntent platform, the client’s code was converted from UNIX to Microsoft based C++ with a SQL Server database, running on Microsoft Internet Information Services (IIS) for Windows. Within a week, CodeIntent was able to parse 80% of the project. Working with the customer’s subject matter expert, we provided the modernized platform to the customer’s exact specifications.

Outcome
The time to refactor the 200,000 lines of code took a total of four weeks—13 times faster than expected by the customer. The customer saved nearly 60% of its planned budget and reduced the need for programmers by more than two-thirds. The customer now has code with ensured data integrity.

COBOL Case Study

Challenge
A customer project spanning 40 years had 1.2 million lines of COBOL leveraging C++ libraries. The complex program was running on an IBM mainframe leveraging Oracle and DB2. The client wanted to replace the COBOL and C++ libraries with Java, a more dynamic coding language, while retaining the ability to leverage its Oracle database. The customer budgeted 18 months for this modernization effort.

Solutions
Using the CodeIntent platform, the AI holistically transformed the 1.2 million lines of code into a domain specific language, which was presented to the customer as a report of code intent, along with found defects and flaws. Approximately 90% of the refactoring work was completed in one month with an additional five months to customize their code for future use.

Outcome
Having code in a domain-specific language allows for a deep understanding of the intent of the code. The client received better documented processes to map their system, reducing complexity and increasing reliability. The project time was reduced by 65%, resulting in an 80% cost savings overall.

About NCI

NCI is a leading provider of enterprise solutions and services to U.S. defense, intelligence, health and civilian government agencies. We have the expertise and proven track record to solve our customers’ most important and complex mission challenges through technology and innovation — delivering cost-effective solutions and services in areas such as advanced analytics; agile DevSecOps; artificial intelligence; cybersecurity and information assurance; engineering and logistics; health IT; and hyperconverged infrastructure. Coupled with a focus on strategic partnerships, NCI is committed to bringing commercial innovation to missions of national importance. NCI is a mid-tier systems integrator headquartered in Reston, Virginia, and operates at locations across the globe. For more information, visit www.nciinc.com or email contactnci@nciinc.com.

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