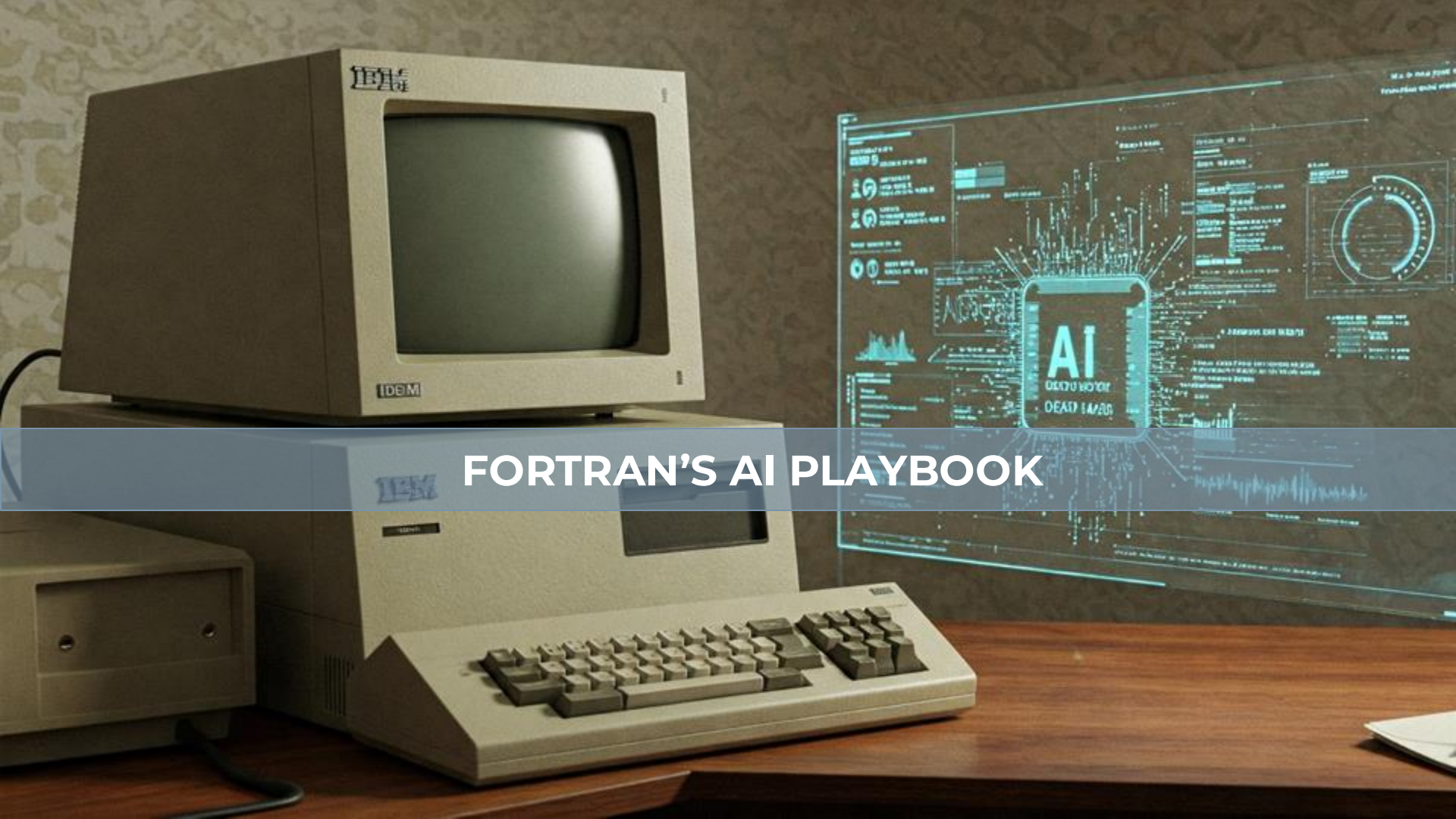


FORTRAN'S AI PLAYBOOK

BEFORE FORTRAN

Before FORTRAN, programming was done in raw machine code: tedious, error-prone, and accessible only to a select few.

“HELLO, WORLD!”

```
section .text
   global _start

_start:
   mov  edx,len     ; length of string, third argument to write()
   mov  ecx,msg     ; address of string, second argument to write()
   mov  ebx,1       ; file descriptor (standard output), first argument to write()
   mov  eax,4       ; system call number for write()
   int  0x80        ; system call trap

   mov  ebx,0       ; exit code, first argument to exit()
   mov  eax,1       ; system call number for exit()
   int  0x80        ; system call trap

section .data
msg db 'Hello, world!', 0xa
len equ $ - msg
```

THE REVOLUTIONARY FORTRAN TEAM

"No one was worried about seeming stupid or possessive of his or her code. We were all just learning together.”"

Lois Haib, a key member of the FORTRAN TEAM

1954	**FORTRAN PROJECT**	John Backus at IBM started the FORTRAN project to create a more user-friendly coding method for the IBM 704 mainframe.
1957	**FORTRAN I**	IBM introduced FORTRAN, the first high-level programming language.
1958	**FORTRAN II**	Adds support for subroutines and functions.
1961	**FORTRAN IV**	Removes machine-dependent features and introduces logical expressions and data types.

“HELLO, WORLD!”

```
program helloworld
      print *, "Hello, World!"
end program helloworld
```

SKEPTICISM ABOUT FORTRAN

"The industry consensus was that they were trying the impossible."

—CRITICISM ABOUT THE FORTRAN TEAM'S WORK

"We had expected that Fortran… could never construct code that was really efficient, either in time or in space. Our intention to take a look at Fortran was accompanied by the assumption that it was going to produce rotten code."

—BETTIS ATOMIC POWER LABORATORY PROGRAMMERS

"He didn't see programming as a big problem… He really felt that FORTRAN was a wasted effort."

—RENOWNED MATHEMATICIAN AND PHYSICIST JOHN VON NEUMANN, A CONSULTANT AT IBM

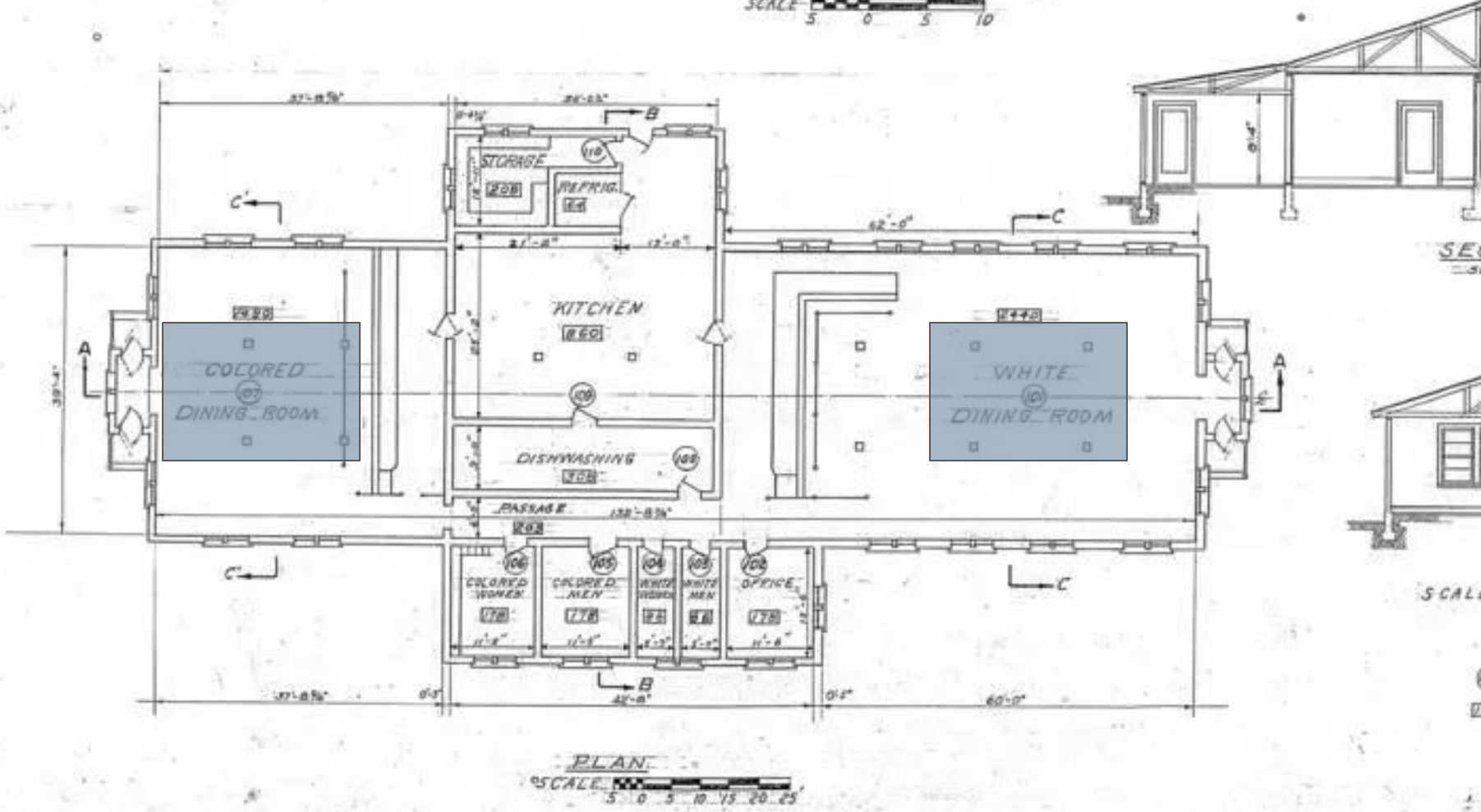
"95 percent of the people who programmed in the early years would never have done it without Fortran. It was a massive step."

Kenneth Thompson, creator of the Unix operating system at Bell Laboratories in 1969

A REVOLUTIONARY LEADER

Dorothy Vaughan

A programmer at NASA who taught herself FORTRAN and helped her team become experts.



PLAN

SCALE 5 0 5 10 15 20 25

ADAPT, EMPOWER, INCLUDE

Adaptation

Vaughn embraced change early, ensuring she and her team stayed relevant.

Empowerment

She didn’t keep her knowledge to herself-she trained her team, sharing opportunities and expertise.

Inclusion

She built a diverse, resilient team, opening doors for new faces in computer programming.

ADAPT

As leaders, we must foster a culture of continuous learning and encourage our teams to experiment with AI tools, not wait until change is forced upon us.

EMPOWER

In the AI era, democratizing access to tools and information is critical. Don’t constrain expertise-make it accessible to everyone, regardless of job title or background.

INCLUDE

Today, as we build and deploy AI, inclusion is essential for mitigating bias and ensuring ethical outcomes.

PREDICTING THE FUTURE OF AI

Looking ahead, leaders face challenges: ethical dilemmas, workforce shifts, and skill gaps.

Thanks!

Do you have any questions?

https://anjuansimmons.com/contact/
@anjuan