

Working Ef- fec- tively with AI in Soft- ware De- vel- op- ment

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Working Effectively with AI in Software Development

You're
AI-
ready
Us-
ing
AI

You're
likely
al-
ready
us-
ing
AI
for:



Autocomplete

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Slide 18

How Language Models Work: Tokens

What
they
are:
ca-
tions:

Text

• bro-

Context

Intro-

Probabilistic Generation

"Models

pre-

dict

the

most

likely

next

to-

ken,

then

the

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Mental Model 1: Knowl- edge- able but Lit- eral Assistant

Characteristics:



Broad
knowl-
edge

Mental Mod- els 2 & 3

The Pat- tern Matcher



Excels
with
fa-
mil-
iar

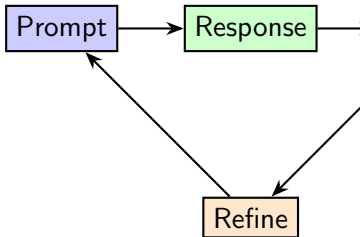
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Key
Take-
away:
Un-
der-
stand-
ing
AI

Effective AI Us
+ Good Commun
+ Critical Ver

The Feed- back Loop



**Key
mes-
sages:**

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Four
Core
Prin-
ci-
ples:
Be
Specific

Comparison:

More

Eff-

fec-

tive:

Write

a

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Principles

2-

4

Principle

2:

Pro-

vide

Con-

text

What

AI

needs:



Relevant
code



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Constraints

Pattern 1: Struc- tured Request

```
#  
#  
Task  
[  
  Clear  
  problem  
  statement  
]
```

Pattern

2:

It-

er-

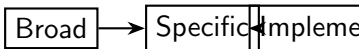
a-

tive

Refinement

Process

flow:



Example

se-

quence:

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Pattern 3: Rub- ber Duck

**Use
case:**

De-
ci-
sion
mak-
ing

**Example
ques-
tion:**

Approach

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Handling Poor Results

**Four
strate-
gies
when
out-
put
isn't
right:**

1

**Add
More
Con-
text**



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Anti- Pattern: Prompt Dumping

DON'T:

```
[  
    Identify  
    relevant  
50    line  
codebases  
]
```

```
"  
    This  
    throws  
    bug  
"
```

reference

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AI Strengths vs Limitations

AI STRENGTHS

I- TA- TIONS

Pattern
recog-

- ni-

Business

- logic

- Error

Architecture

der-

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Code Re- view Workflow

Three
stages
with
AI:

**PRE-
COMMIT**



You
ask
AI
to

re-

Review Prompts

Template ap- proach:

```
Review
```

```
    this
```

```
    [  
    type  
    ]
```

```
    code
```

```
    for  
    :
```

```
-
```

Debugging with AI: Er- ror Interpretation

Template:

```
I  
    ,  
    m  
  
    getting  
  
    this  
  
    error  
    :
```

Debugging Techniques

Technique	When to Use
Hypothesis generator	System is complex
Rubber duck++	Validating logic
Trace explainer	Understanding flow
Fix validator	Verifying solutions
Comparative debugging	Finding patterns

Example:



"Why
works:
[code
A]"

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Debugging Workflow

Three phases:

SEARCHING
BREAKING
ING
AI.

Understand

✓ why

• Examine

Side

• errors

✓ Most?

• Repro

steps

Test

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Core
Prin-
ci-
ple:
Aug-
ment,
Don't
Replace

**Augment,
Don't
Re-
place**

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Three Es- sen- tial Patterns

Pattern 1: Gen- er- ate and Re- view

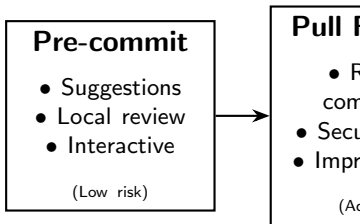


AI
generate

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CI/CD In- te- gra- tion Points



Each

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Pipeline Considerations

**Three
crit-
i-
cal
fac-
tors:**

**FAIL-
SAFE
DE-
SIGN**



Don't
break
pipelines

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Security & Data

**Key
con-
sid-
er-
a-
tions:**

**DATA
EX-
PO-
SURE**



What

goes

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Threat Categories

Three
lay-
ers
of
se-
cu-
rity:

APPLICATION SECURITY LAYER

(focus
of API
ses- session)
Auth- authorization
Access
rity-
con-

Key Threat: Prompt Injection

**No
com-
plete
so-
lu-
tion
ex-
ists.**

Goal:
re-
duce
risk

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Defense in Depth Approach

Input Validation

(Filter suspicious inputs)

Prompt Design

(Use clear delimiters)

Output Validation

(Check for sensitive data)

Least Privilege

(Limit available functions)

Human-in-the-Loop

(Approve sensitive actions)

Practical Guidance

DON'T:



Review
gen-
cept
ated
ges
times
fully



Paste
Watch
func-
tion
cre-

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What We Just Covered

Foundation

How models work,
mental models

Prompting

4 principles,
3 patterns

Code Inspection

Review & debug
workflows

Automation

Patterns, CI/CD,

reliability

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Let's
See
It
In
Practice

*"Let's
see
how
these
prin-
ci-
ples
ap-
ply*

Thank You!

Questions?