

100162.0pt100

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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How Lan- guage Mod- els Work: Tokens

What
they
are:
ca-
tions:

- Text
- bro-

Context

Probabilistic Generation

"Models predict the most likely next token, then the

Mental Model

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

Characteristics:



Broad
knowl-

Mental Mod- els 2 & 3

The Pat- tern Matcher



Excels
with
fa-
mil-

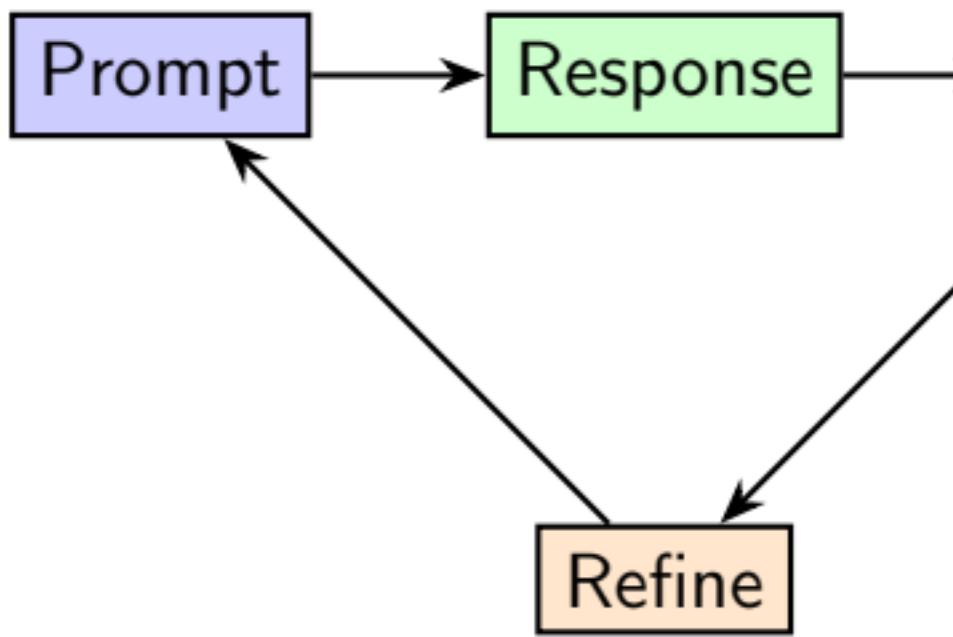
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Key
Take-
away:
Un-
der-
stand-
ing
AI

Effective AI Us
+ Good Commu
+ Critical Ver

The Feed- back Loop



**Key
mes-
sages:**

Four
Core
Prin-
ci-
ples:
Be
Specific

Comparison:

More
Ef-
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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Pattern

1:

Structured Request

```
#
```

```
#
```

```
Task
```

```
[
```

```
    Clear
```

```
    problem
```

```
    statement
```

```
]
```

Pattern

2:

It-

er-

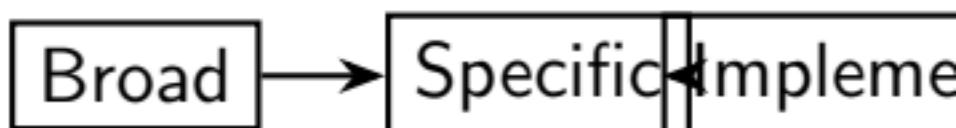
a-

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 strategies when output isn't right:

1

Add
More
Con-
text



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Walking Effectively with AI in Software Development

Anti-Pattern: Prompt Dumping

DON'T:

```
[  
    Emphasify  
    relevant  
    50    line  
    codebasines  
]
```

```
"  
    This  
    throws  
    huge  
"  
reference
```

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AI Strengths vs Limitations

AI
~~STRENGTHS~~
I-
TA-
TIONS Pattern

recog-

- ni-

Business

- logic

- Error

Architecture

tier-

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Code Re- view Workflow

Three
stages
with
AI:

**PRE-
COMMIT**



You
ask
AI
to

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Review Prompts

Template approach:

Review

this

[

type

]

code

for

:

-

Debugging with AI: Er- ror Interpretation

Template:

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

Debugging Techniques

Technique	When
Hypothesis generator	System
Rubber duck++	Validation
Trace explainer	Understanding
Fix validator	Verification
Comparative debugging	Finding

Example:



”Why
works:
[code
A]”

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Debugging Workflow

Three
phases:

~~SEARCHING~~
~~BREAKING~~
ING
AI.

Understand

- ✓ Why
- Break-
- Down
- Errors
- ✓ What?
- Reply to
- finds

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

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

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AI Effectively with AI in Software Development

Three Es- sen- tial Patterns

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



AI

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CI/CD

In-

te-

gra-

tion

Points

Pre-commit

- Suggestions
- Local review
- Interactive

(Low risk)

Pull R

- R
- com
- Secu
- Impr

(Ad

Each

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Pipeline Considerations

Three critical factors:
FAIL-SAFE DESIGN



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 layers
of security:

INFRASTRUCTURE LAYER

(focus of Authorization sessions) Access control

Key Threat: Prompt Injection

No
com-
plete
solu-
tion
ex-
ists.

Goal:
re-
duce
risk

Defense in Depth Approach

Input Validation

(Filter suspicious input)

Prompt Design

(Use clear delivery)

Output Validation

(Check for sensitivity)

Least Privilege

(Limit available functionality)

Human-in-the-loop

(Approve sensitive changes)

Practical Guidance

DON'T:



Reimplement

gen-

cept

abused

gesture

ties

fully



Paste

Watch

for-

tion

cre-

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Walking Effectively with AI in Software Development

What We Just Covered

Foundation

How models work,
mental models

Prompting

4 principles,
3 patterns

Code Inspection

Review & debug
workflows

Automation

Patterns, CI/CD,

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reliability

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Let's See It In Practice

"Let's

see

how

these

prin-

ci-

ples

ap-

ply

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Thank You!

Questions?