Writing Workshop 1V

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Beginning the Interdisciplinary Research Process

STEP I: Define the Problem

STEP II: Justify using an interdisciplinary approach

STEP III: Identify relevant disciplines and choose the most relevant to the problem

STEP IV: Conduct a Literature Search

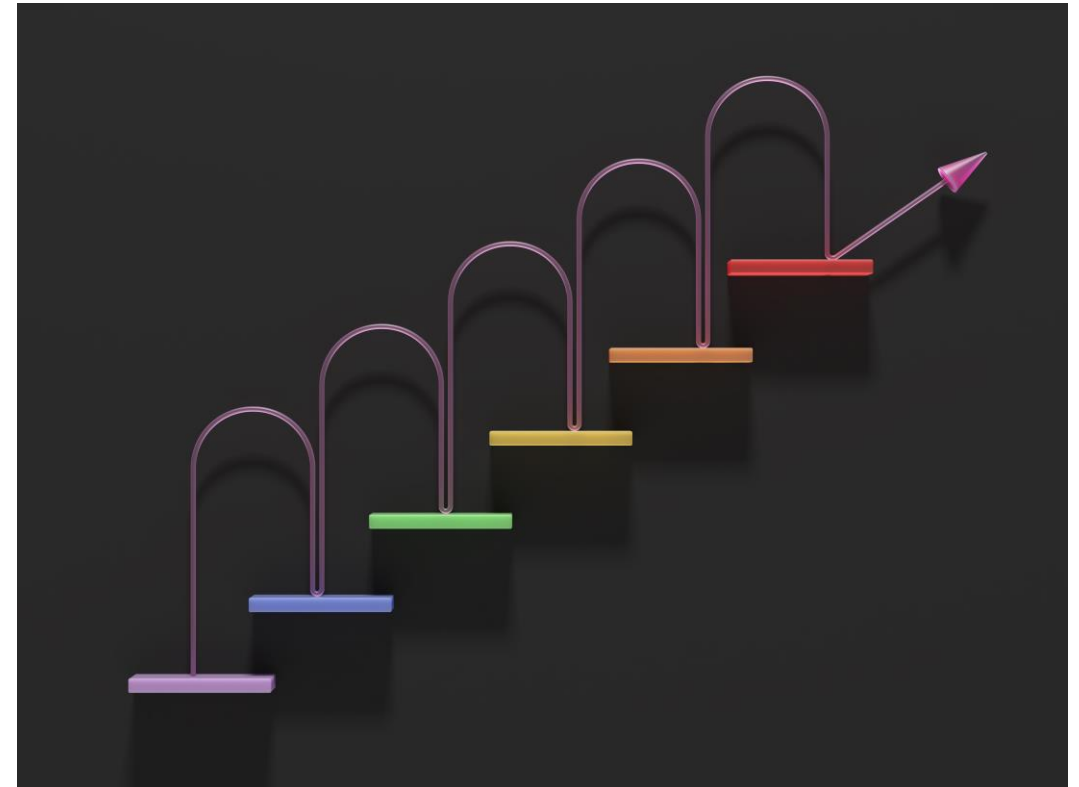STEP V: Develop adequacy in each relevant discipline

STEP VI: Analyze the problem and evaluate each insight into it

STEP VII: Identify conflicts between insights and locate their sources

STEP VIII: Creating Common Ground

STEP IX: Integrate Insights

STEP X: Produce an interdisciplinary understanding of the problem and test it

I. Define the Problem

What are the major benefits and challenges of using artificial intelligence to automate and enhance the accuracy of digital forensics investigations in cloud environments?

II. Justify using an interdisciplinary approach

BY UTILIZING INTERDISCIPLINARY APPROACHES FROM INFORMATION TECHNOLOGY, CRIMINOLOGY, AND LAW, THIS STUDY EXPLORES THE IMPACT OF AI ON FORENSIC TOOLS AND PROCESSES, THE ETHICAL AND LEGAL IMPLICATIONS, AND THE TECHNOLOGICAL CHALLENGES SPECIFIC TO CLOUD ENVIRONMENTS.

THE RESEARCH HIGHLIGHTS THE NECESSITY OF A MULTIFACETED APPROACH TO ADDRESS THESE CHALLENGES AND LEVERAGE AI EFFECTIVELY IN DIGITAL FORENSICS.

III. Identify relevant disciplines and choose the most relevant to the problem
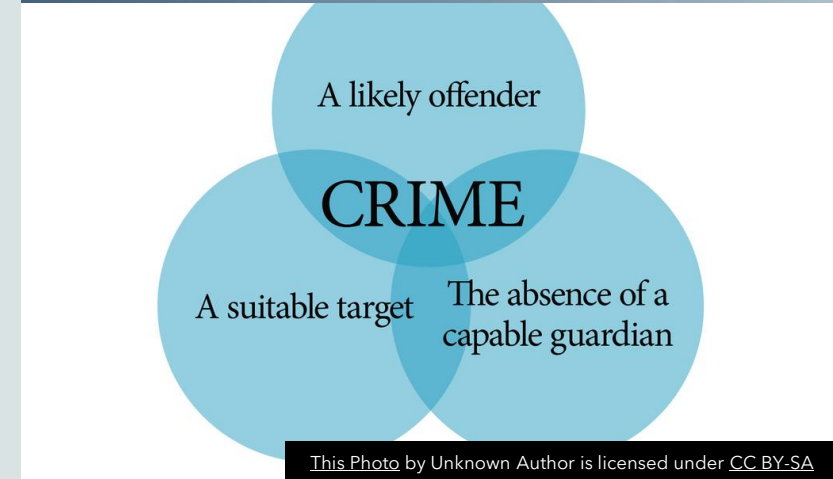

Disciplines involved:

Information Technology (IT)

➢ *While AI is typically associated with Cybersecurity, it is also IT and cloud environments.*

Criminology

➢ *Understanding and examining criminology and its effect on cybersecurity is essential to understanding the investigations.*

Law

➢ *Digital forensics is used in investigations and criminal court. Researching this field is essential to understanding the investigative process.*


A likely offender

CRIME

A suitable target   The absence of a capable guardian

IV.
Conduct a Literature Search

1 This process ensures your research is well-informed, focused, and relevant.

2 SAVE TIME: DISCOVER EXISTING KNOWLEDGE TO AVOID REDUNDANT WORK.

3 NARROW TOPIC: REFINE YOUR RESEARCH QUESTION BASED ON EXISTING FINDINGS.

4 UNDERSTAND BACKGROUND: LEARN THE HISTORICAL, CULTURAL, POLITICAL, AND SOCIAL CONTEXTS OF THE PROBLEM.

5 CONTEXTUALIZE THE PROBLEM: PLACE THE PROBLEM WITHIN A BROADER ACADEMIC AND PRACTICAL LANDSCAPE.

6 SHOW PRIOR RESEARCH PATHS: HIGHLIGHT SUCCESSFUL METHODOLOGIES AND FINDINGS.

7 DEMONSTRATE FAMILIARITY: ENGAGE WITH EXISTING ACADEMIC CONVERSATIONS.

8 IDENTIFY RELEVANT DISCIPLINES: DETERMINE WHICH FIELDS OFFER THE MOST PERTINENT INSIGHTS.

V. Develop adequacy in each relevant discipline

- Identified key terms

- Integrated disciplines

- Addressed the challenges
  associated with each discipline
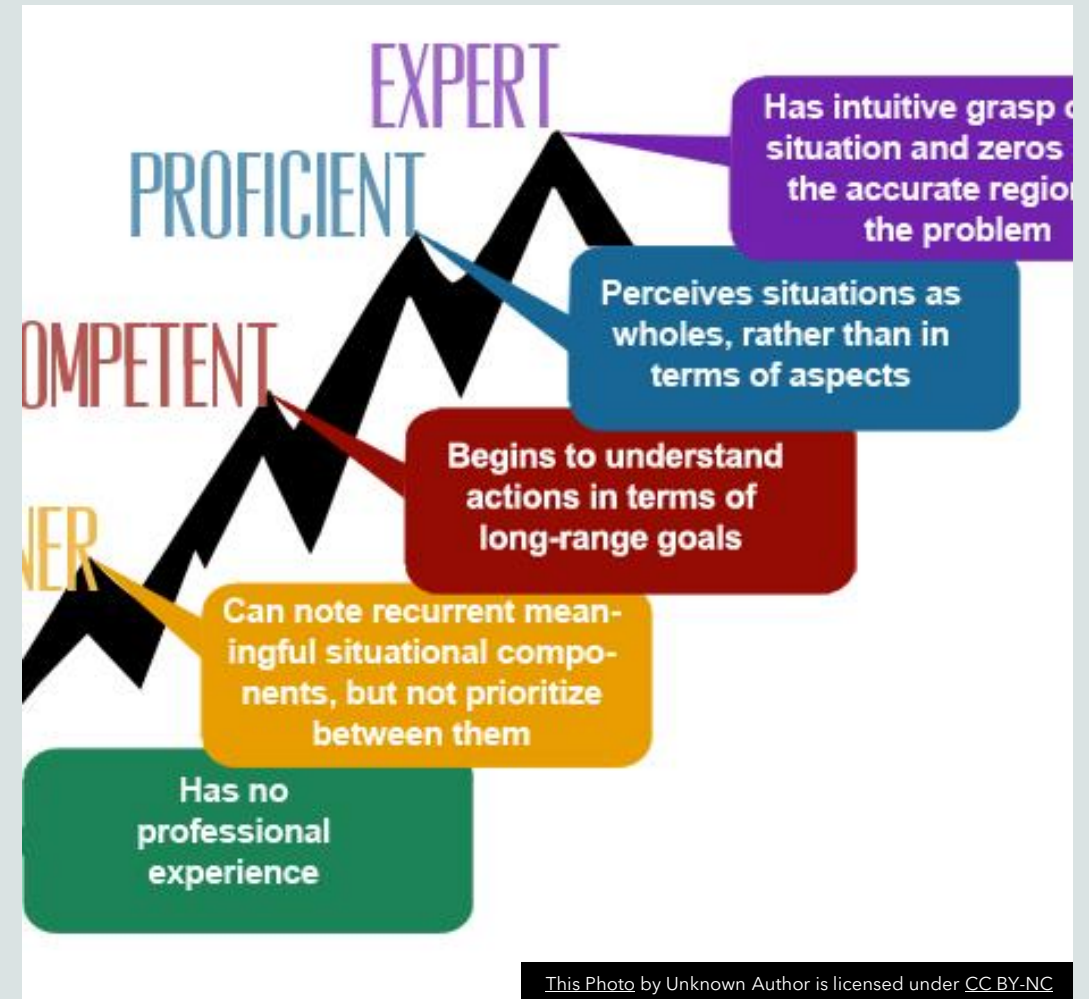
VI. Analyze the problem and evaluate each insight into it

- Defined the problem

- Found resources to better understand the issue

- Tested the question with real world case-studies

- Changed my understanding based on the documentation collected

VII. Identify conflicts between insights and locate their sources

Criminology: AI might improve crime detection but could also introduce biases.

Law: Conflicts between AI's capabilities and privacy/legal standards.

IT: Issues with data fragmentation and security despite AI advancements.

Sources: Conflicts arise from differing views on AI's effectiveness, legal gaps, and IT integration challenges.

VIII. Creating Common Ground

These overlapping problems show how important it is to find solutions that take care of technological, moral, and legal issues all at once. The method is crucial for creating plans to deal with these issues because each discipline offers unique perspectives that help us grasp the impact of artificial intelligence in digital forensics.
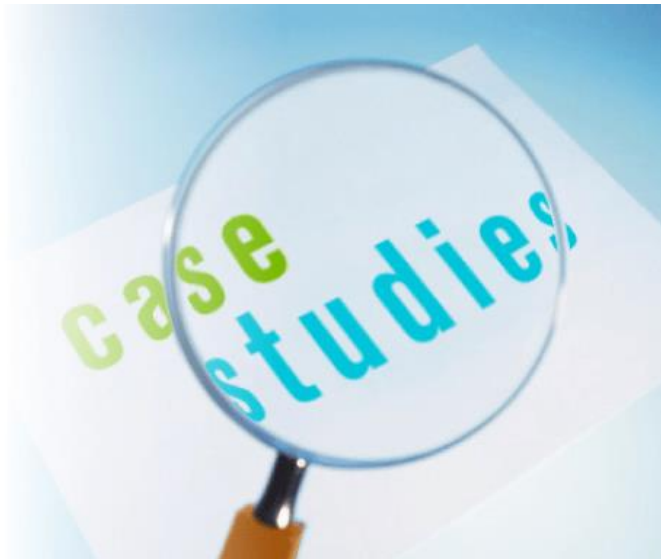
IX. Integrate Insights

1. Combine Findings:
   - ❑ *Criminology: AI enhances investigative capabilities but may introduce bias and integration challenges.*
   - ❑ *Law: Digital forensics in cloud environments faces legal complexities and data handling issues.*
   - ❑ *Information Technology: Cloud computing provides scalable storage solutions but struggles with data fragmentation and security concerns.*

2. Appy Insights
   - ❑ *Overlap: AI's data handling complements forensic needs in cloud environments.*
   - ❑ *Challenges: Address integration, ethical, and privacy concerns.*

3. Apply and Test:
   - ❑ *Case Studies: Use examples where AI enhances forensic processes.*
   - ❑ *Solutions: Suggest improvements and best practices for using AI in cloud forensics.*

4. Communicate:
   - ❑ *Report: Summarize key insights and recommendations.*

X. Produce an interdisciplinary understanding of the problem and test it

Using Repko's 10-Step Model, integrate insights from criminology, law, and IT to understand how AI improves forensic analysis while addressing privacy, admissibility, and technical challenges. Test this understanding through real-world case studies and simulations to evaluate AI's effectiveness and compliance with legal standards. Refine the approach by combining these findings to enhance AI integration in digital forensics.