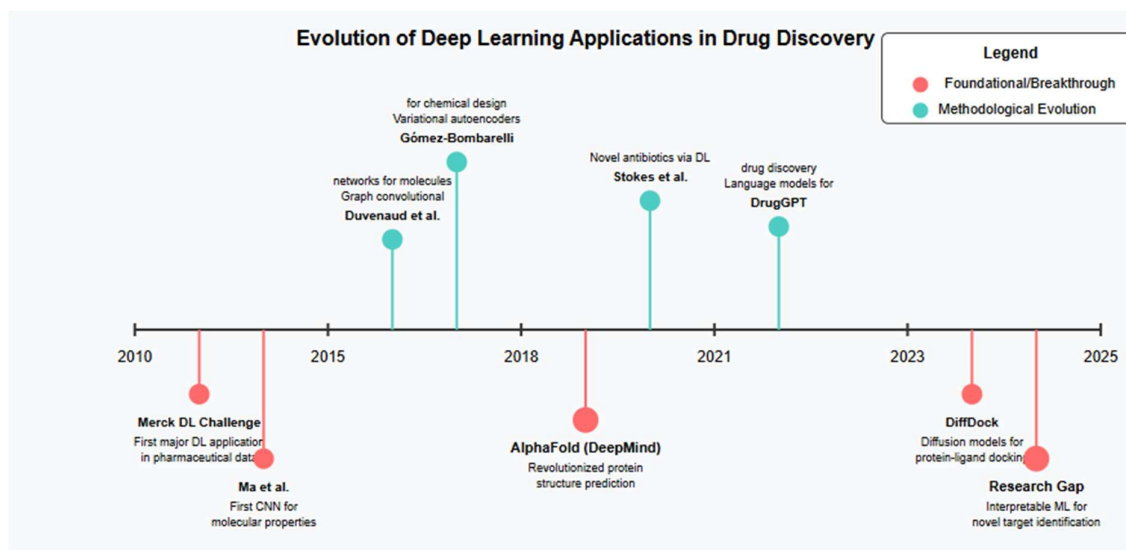


# 24RM801 Research Methodology for Engineering

## Assignment 4: Systematic Literature Mapping of Research Evolution

1. Conduct a systematic literature search using:
  - At least 4 different academic databases
  - A documented search strategy with Boolean operators
  - Both keyword and citation-based search methods
  - Predetermined inclusion/exclusion criteria
2. Create a chronological mapping of 25-30 key sources showing:
  - Major theoretical developments
  - Methodological innovations
  - Shifts in research focus over time
  - Prominent debates and controversies

Example:



3. Analyze citation patterns to identify:
  - Seminal works with high citation counts
  - Emerging research trends
  - Underexplored research areas
  - Interdisciplinary connections
4. Develop a visual representation (timeline, network map, or matrix) illustrating:
  - Relationships between key works
  - Intellectual lineages in your field
  - Conceptual clusters
  - Methodological approaches

A conceptual matrix could look like:

| Work                 | Theme                       | Methodology          | Citation Impact | Field Linkage     |
|----------------------|-----------------------------|----------------------|-----------------|-------------------|
| Chawla et al. (2006) | Fundamental MMC review      | Literature synthesis | Very High       | Materials Science |
| Surappa (2003)       | Challenges in MMCs          | Experimental         | High            | Mechanical Engg   |
| Khan et al. (2021)   | ML-based thermal prediction | Machine Learning     | Moderate        | AI & Materials    |
| Singh et al. (2022)  | Eco-friendly reinforcement  | Sustainability       | Emerging        | Green Tech        |

5. Write a 2000-word analytical report that:

- Assesses the reliability of different sources based on methodological rigour
- Identifies limitations in existing literature
- Articulates specific knowledge gaps your research addresses
- Explain how your research methodology builds upon or diverges from established approaches

**Submission Link:**

[https://docs.google.com/forms/d/e/1FAIpQLSd04PIQ7QgzMXHLkZ7I8U0v3E5e1TeW3\\_yr3QtrWCTn\\_jeWPw/viewform?usp=sharing](https://docs.google.com/forms/d/e/1FAIpQLSd04PIQ7QgzMXHLkZ7I8U0v3E5e1TeW3_yr3QtrWCTn_jeWPw/viewform?usp=sharing)