

```

{
  "$comment": "TimeZyme core blank stub – fill all null / [] values.",
  "who": {
    "$comment": "Primary authors or organizations, in order of appearance.",
    "authors_and_entities": []
  },
  "what": {
    "$comment": "Document identity and focus.",
    "title": null,
    "summary": null,
    "zyme_abstract": null,
    "keywords": [],
    "document_type": null,    // enum: research_paper | review_article | preprint | thesis | case_study |
white_paper | general_document
    "research_questions_or_objectives": []
  },
  "where": {
    "$comment": "Publication venue & identifiers.",
    "publication_venue_name": null,
    "doi": null,
    "publication_url": null
  },
  "when": {
    "$comment": "Key date (YYYY-MM-DD preferred).",
    "publication_or_event_date": null
  },
  "how": {
    "$comment": "Method, findings, conclusions.",
    "methodology_summary_or_process_description": null,
    "key_findings_or_results_or_outcomes": [],
    "main_conclusions_or_recommendations_or_rulings": []
  },
  "how_much": {
    "$comment": "Numbers, scope, limitations.",
    "sample_size_or_dataset_description": null,
    "key_quantitative_results_or_metrics": [],
    "limitations_stated_or_risks_identified": []
  },
  "_meta": {
    "$comment": "Extraction confidence notes.",
    "confidence": null,      // 0.0 – 1.0
    "uncertain": []         // list objects: { "path": "...", "why": "..."}
  }
}

```