In this project we aim to develop an intelligent system to rapidly and accurately comprehend a rich set of trustworthy knowledge elements (problem, algorithm, hypothesis, result, concepts) embedded in a paper, and their relations to each other, from both text and graphics (e.g., diagrams, formulas, pictures, graphs, charts, and tables with associated captions), link them to external background knowledge, as well as semantic relations between papers for further knowledge synthesis and new knowledge generation. We will develop new principles, methods, and technologies for extracting, resolving and synthesizing actionable knowledge from content presented in multiple data modalities, and generating informative new technical documents.