



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
PhD-17 SHORT ABSTRACT OF THESIS

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Programme of Study : Ph.D.

Thesis Title: A Family of Generative Frameworks for Computational Argument Mining

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Thesis Submitted to the Academic Division : Yes

Date of completion of Thesis Viva-Voce Exam : 22-05-2026

Key words for description of Thesis Work : Argument Mining, Generative Frameworks, Biomedical Argument Mining, Key Phrase, PICO

SHORT ABSTRACT

Argument Mining (AM) aims to automatically extract argumentative structures from unstructured text by identifying argumentative components and the relations between them. Traditional AM approaches often rely on pipeline architectures or complex graph-based methods, which suffer from error propagation, inefficient relation modelling, and limited utilization of discourse-level semantic cues. This thesis addresses these challenges through a series of generative frameworks that reformulate AM as unified text generation and structured prediction tasks. First, an Augmented Natural Language (ANL)-based framework, argTANL, is proposed to jointly model argumentative components and relations while incorporating discourse and argumentative markers to improve component classification. To strengthen relation modelling, a second framework introduces Related Key Phrases as semantic bridges between connected components, enabling more effective joint modelling of argumentative structures. Building upon this idea, the thesis further proposes Ent-BAM, an entity-aware generative framework for Biomedical Argument Mining that incorporates PICO-aligned biomedical entities for end-to-end modelling of all AM subtasks. Finally, the thesis introduces Autoregressive Argumentative Structure Prediction (AASP), a framework that models argument structures through sequential structural actions, reducing redundancy and improving reasoning over long-range dependencies. Experimental evaluations across multiple benchmark datasets demonstrate that the proposed frameworks consistently achieve strong or state-of-the-art performance. This thesis advances generative approaches for AM by integrating semantic, structural, and domain-specific knowledge into unified modelling frameworks.