• 計畫中文名稱	利用擴散理論、語義網絡與時序分析爲基礎之機器學習法建立人類活動與環境變遷間之分析模擬模型		
• 計畫英文名稱	Building an Analytic Enumeration Model to Discover the Association between Human Activities and Environmental Changes Using Machine Learning Approaches Based on Percolation Theory, Semantic Networks and Time-Series Analyses		
• 系統編號	PB9709-3521	• 研究性質	基礎研究
• 計畫編號	NSC97-2221-E038-006	• 研究方式	學術補助
• 主管機關	行政院國家科學委員會	• 研究期間	9708 ~ 9807
• 執行機構	臺北醫學大學醫學資訊研究所		
• 年度	97 年	• 研究經費	410 千元
• 研究領域	資訊科學--軟體		
• 研究人員	蔣以仁		
• 中文關鍵字	--		
• 英文關鍵字	--		
• 中文摘要	在人類文明活動所產生的社科文獻中的背景，多是可反應自科學數據中的所呈現之 環境現象；正如同各種自然環境所紀錄的統計曲線，是如此曖曖地描繪著人類經濟活動 的消長與社會國家的興衰一般。本計畫以三年爲期，從底層文本探勘（Text Mining）之 資訊技術開始架構，透過自然語言處理（Nature Language Processing）之技術與探勘演 算法（Mining Algorithm）之實作和改良，將萃取出之資訊以知識本體論（Ontology）的理 論精神進行語意網絡（Semantic Web）之架構；而在架構與演算法的實作改良過程中， 將透過機器學習（Machine Learning）的技術建立智能型之文本探戡系統，並透過 Entities 間關係（Relationship）之建立，企圖在主題實體（Topic Entities）、時序資料（Temporal Data）及空間資料（Spatial Data）等不同特性的資料間進行複合型之知識探勘；在串聯 的分析方法中，本計畫將採用時序分析（Time Series）等連續性資料之分析模型進行 Longitudinal 與 Cross-Section 等事件影響模型之 Duo Mining。同時，將嘗試以擴散理論 （Percolation Theory）等相關網路科學（Network Science）模型建立科學模擬邏輯，希 能從過往之文獻與科學數據中覺知人類活動與自然環境之互動演進與交互作用；最後期 以架構供科學界研究利用之推論模型爲目標，並透過視覺化系統（Visual System）模擬 與呈現模型架構與推論之結果。		
• 英文摘要	As time goes by, human being have conquered almost every tiny land on earth, we believe that science and technology will help us to solve every problem just as them have done centries ago. We've never though that technologies would be that insignificant until the nature became even more unpredictable; we know that history repeats itself, but we seldom look back. Trillions of data hide and remain un-noticed in differenct kind of text content, what we're trying to solve		

	and figure out in this project, is to implement the Nature Language Processing and Data Mining technologies of artificial intelligence, to find out the concept terms in each text content. With the extracted terms (Entities) from the context, we'll attempt to build up relational networks by the Ontology theory for each entities, this kind of network will be the basic componets for our Semetic Web. Follow by the semetic terms and ontology, we'll use the Automatic Clustering, Dynamic Model, and Inference Logic technologies to mine for the interaction between human activities and the response of nature environment from our past experience in the tremendous text content. By implement the Time Series analysis theory, we'll try to model for the series data relationships and build the scientific logic for further emulation. At second and third stedge for our project, we are intrested in the Percolation and Network science for modeling, which should cooperate with some logical fomulation and the virtual system to emulate the environmental issues.