

Title: In-patient fall prevention: Approaches in Data Science vs Empirical Management

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Abstract (up to 300 words) – [slides](#)

In-patient fall over may cause significantly negative impacts on both patients and healthcare staff at a hospital. Per rules and regulations, various compliances and standards are set forth in many countries, and most hospitals meet their standards. Furthermore, hospitals keen on medical safety implement and practice additional measures such as specific consideration against fall over within their in-patient check-in procedures and additional in-patient observation through nursing notes. The university hospital at Osaka Medical and Pharmaceutical University is a leading healthcare facility in Japan about medical safety. Unfortunately, the number of fall over cases has never been zero despite its extremely low incidents (e.g. a few per year) as the top performance nationwide.

On the other hand, advancement of IT is quite notable and use of Artificial Intelligence and Machine Learning (AIML) becomes dominant in many fields. We then conducted some AIML experiments against their clinical data for 5 years, i.e. collected within the recent 10 years and containing approximately 130,000-150,000 cases of in-patient care in order to find any strong correlations and ideally, stronger classification models. Additionally, we conducted some data analysis to identify a key performance index (KPI) on the currently existing in-patient observation practice.

In this talk, our recent findings and the recently found KPI are shared. Additionally, our new project on behavioral recognition and analysis concerning in-patient fall over cases is introduced as a new addition and a suggested new direction of this challenging matter. As a summary, a comprehensive in-patient fall over prevention scheme that consists of Data Sciences, Empirical Management and Behavioral Recognition and Analysis is presented as time allows.

Biography (upto 150 words)

Atsushi Inoue earned his Ph.D. in Computer Science from the University of Cincinnati, Cincinnati, OH in 1999. He has been a full professor at Eastern Washington University, Cheney/ Spokane, WA until 2020, specializing in AIML, Blockchain and Digital Entrepreneurship. He returned to his mother country, Japan in 2020 to further enhance his digital entrepreneurship with technology advancement in AIML and Blockchain. He is currently a visiting professor at Mie University, Japan and the CTO at BaaSid, Singapore while preparing for various startups and conducting consultations in Pan Asia.

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