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<p>(51) International classification :G16H0040200000, G06N0020000000, G16H0050200000, G16H0050300000, G16H0010600000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant :  <b>1)SAMATHA KORUKONDA</b>  Address of Applicant :University college of Engineering Kakinada, JNTU Kakinada, Nagamallithota, Kakinada, AP 533003 -----  <b>2)V.ANJANI KRANTHI</b>  <b>3)C. YOSEPU</b>  <b>4)Dr. R. SANTHOSHKUMAR</b>  <b>5)MODUGU DILEEP KUMAR</b>  <b>6)Dr. G. JAWAHERLALNEHRU</b>  <b>7)Dr. B. RAJALINGAM</b>  <b>8)Dr. V. SHEEJA KUMARI</b>  Name of Applicant : NA  Address of Applicant : NA  (72)Name of Inventor :  <b>1)SAMATHA KORUKONDA</b>  Address of Applicant :University college of Engineering Kakinada, JNTU Kakinada, Nagamallithota, Kakinada, AP 533003 -----  <b>2)V.ANJANI KRANTHI</b>  Address of Applicant :Sagi Rama Krishnam Raju (SRKR) Engineering College (Autonomous), SRKR Marg, China Amiram, Bhimavaram, A.P, India - 534204 ---  <b>3)C. YOSEPU</b>  Address of Applicant :St.Martin's Engineering College, Sy. No.98 &amp; 100, Dhulapally Road, Dhulapally, Near Kompally, Medchal-Malkajgiri district, Secunderabad-500 100, Telangana, India. -----  <b>4)Dr. R. SANTHOSHKUMAR</b>  Address of Applicant :St.Martin's Engineering College, Sy. No.98 &amp; 100, Dhulapally Road, Dhulapally, Near Kompally, Medchal-Malkajgiri district, Secunderabad-500 100, Telangana, India. -----  <b>5)MODUGU DILEEP KUMAR</b>  Address of Applicant :St.Martin's Engineering College, Sy. No.98 &amp; 100, Dhulapally Road, Dhulapally, Near Kompally, Medchal-Malkajgiri district, Secunderabad-500 100, Telangana, India. -----  <b>6)Dr. G. JAWAHERLALNEHRU</b>  Address of Applicant :St.Martin's Engineering College, Sy. No.98 &amp; 100, Dhulapally Road, Dhulapally, Near Kompally, Medchal-Malkajgiri district, Secunderabad-500 100, Telangana, India. -----  <b>7)Dr. B. RAJALINGAM</b>  Address of Applicant :St.Martin's Engineering College, Sy. No.98 &amp; 100, Dhulapally Road, Dhulapally, Near Kompally, Medchal-Malkajgiri district, Secunderabad-500 100, Telangana, India. -----  <b>8)Dr. V. SHEEJA KUMARI</b>  Address of Applicant :Saveetha School of Engineering, Saveetha University, Thandalam, Kuthambakkam, Tamil Nadu 600124 -----</p>
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(57) Abstract :

Crowding within emergency departments (EDs) can have significant negative consequences for patients. EDs therefore need to explore the use of innovative methods to improve patient flow and prevent overcrowding. One potential method is the use of data mining using machine learning techniques to predict ED admissions. This patent uses routinely collected administrative data from two hospitals to compare contrasting machine learning algorithms in predicting the risk of admission from the ED. We use three algorithms to build the predictive models: 1) logistic regression; 2) decision trees; and 3) gradient boosted machines (GBM). The GBM performed better than the decision tree and the logistic regression model. Drawing on logistic regression, we identify several factors related to hospital admissions, including hospital site, age, arrival mode, triage category, care group, previous admission in the past month, and previous admission in the past year. This invention highlights the potential utility of three common machine learning algorithms in predicting patient admissions. Practical implementation of the models developed in this invention in decision support tools would provide a snapshot of predicted admissions from the ED at a given time, allowing for advance resource planning and the avoidance bottlenecks in patient flow, as well as comparison of predicted and actual admission rates. When interpretability is a key consideration, EDs should consider adopting logistic regression models, although GBM's will be useful where accuracy is paramount.

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