

DR. JIA WEI CHANG

張家瑋 博士

國立臺中科技大學資訊工程系專案助理教授

國立成功大學工程科學系兼任助理教授



重要經歷

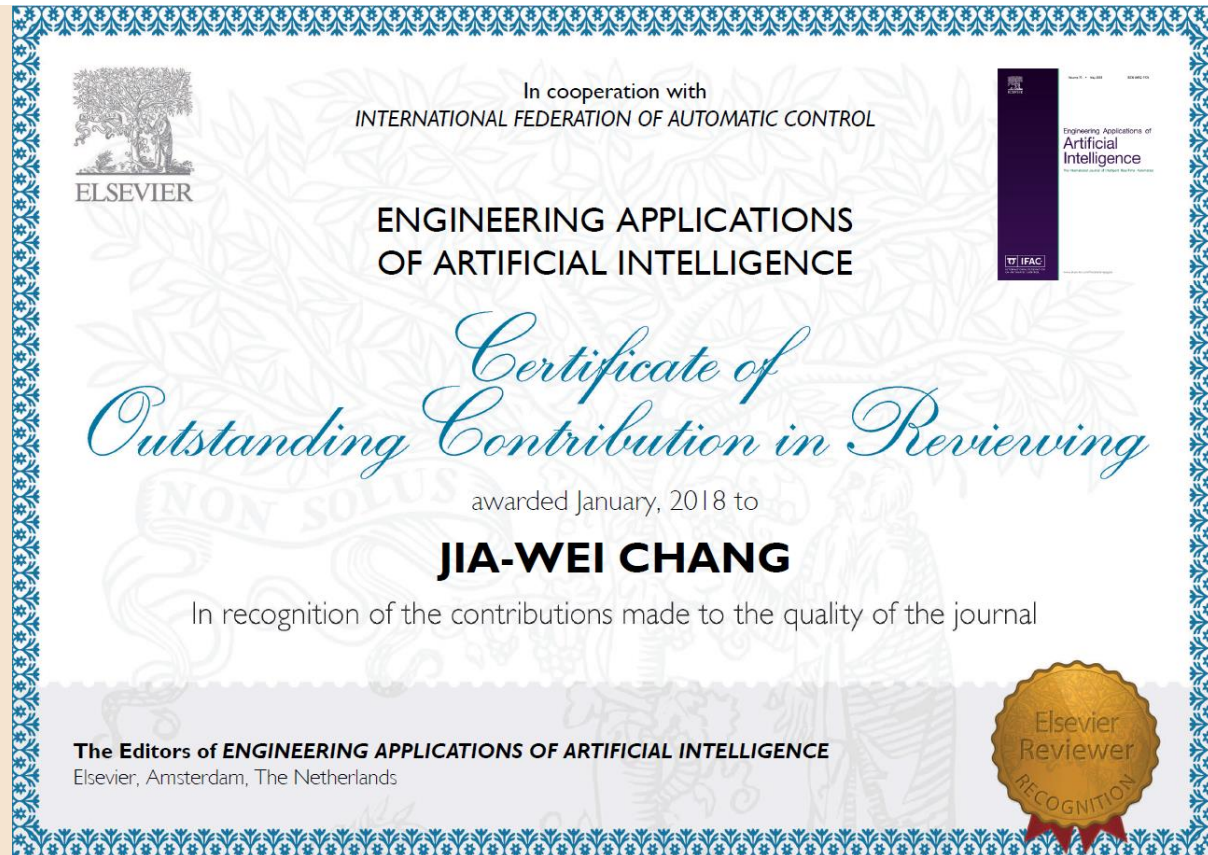
1. [Now] 臺中科技大學資工系專案助理教授
2. [Now] 清華大學資通安全研究與教學中心(TWISC)成員
3. [Now] 成大工科系兼任助理教授
 - 上學期開設有**人工智慧應用實務**課程
4. [Now] 成大分散式帳本實驗室成員
 - 負責**分散式帳本(區塊鏈)**的技術研發與應用
5. [2018] 曾任成大未來智慧工場博士後
 - 負責與永豐銀行合作的授信風險報告與評估研究案
 - 永豐銀行企業內訓-大數據、人工智慧系列課程
6. [2017] 曾任新漢股份有限公司資料科學家
 - 負責**智慧醫療資料**的分析與應用
 - 物聯網與人工智慧教育推廣

1. 現任臺中科大資工系專案助理教授
2. 現任清大TWISC成員
3. 現任成大工科系兼任助理教授
4. 現任成大分散式帳本實驗室成員
5. 成大未來智慧工場博士後
6. 新漢股份有限公司資料科學家
7. 物聯雲股份有限公司電商平台架構師

榮譽

Honors

- 2018 Engineering Applications of Artificial Intelligence
 - Outstanding Reviewer Award
 - Top 10th percentile of reviewers in the last two years
- 2017 Symposium on Digital Life Technologies
 - Excellent Paper Awards
- 2017 The Phi Tau Phi Scholastic Honor Society
 - Honorary Member of National Cheng Kung University
- 2011 National Computer Symposium
 - Best Student Paper Awards
- 2010 Ministry of Science and Technology
 - College Student Research Award



學術服務

The 8th International Conference on Frontier Computing (FC2019)

Theory, Technologies and Applications

KYUSHU, JAPAN || JULY 9-12, 2019



擔任 Program Committee Chair

- 論文集收錄至LNEE (EI)
- 遴選出之論文將推薦至多本SCI期刊
- IET協會贊助
 - Young Professionals & Member

Academic Services

- Multimedia and Information Technology in Education - Special Session Chair
 - The 31st IPPR Conference on Computer Vision, Graphics, and Image Processing, Aug. 19-21, 2018
- 2018 IEEE Access - Reviewer
 - SCI, Impact Factor: 3.557, Rank: 24/148 [16.22%] in COMPUTER SCIENCE, INFORMATION SYSTEMS
- 2018 Engineering Applications of Artificial Intelligence - Reviewer
 - SCI, Impact Factor: 2.819, Rank: 32/132 [24.24%] in COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE
- 2018 The Journal of Supercomputing - Reviewer
 - SCI, Impact Factor: 1.532, Rank: 44/103 [42.23%] in COMPUTER SCIENCE, THEORY & METHODS
- 2018 Cognitive Systems Research - Reviewer
 - SCI, Impact Factor: 1.425, Rank: 90/133 [67.29%] in COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE
- 2017 Engineering Applications of Artificial Intelligence - Reviewer
 - SCI, Impact Factor: 2.894, Rank: 32/133 [24.06%] in COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE



ABOUT RESEARCH

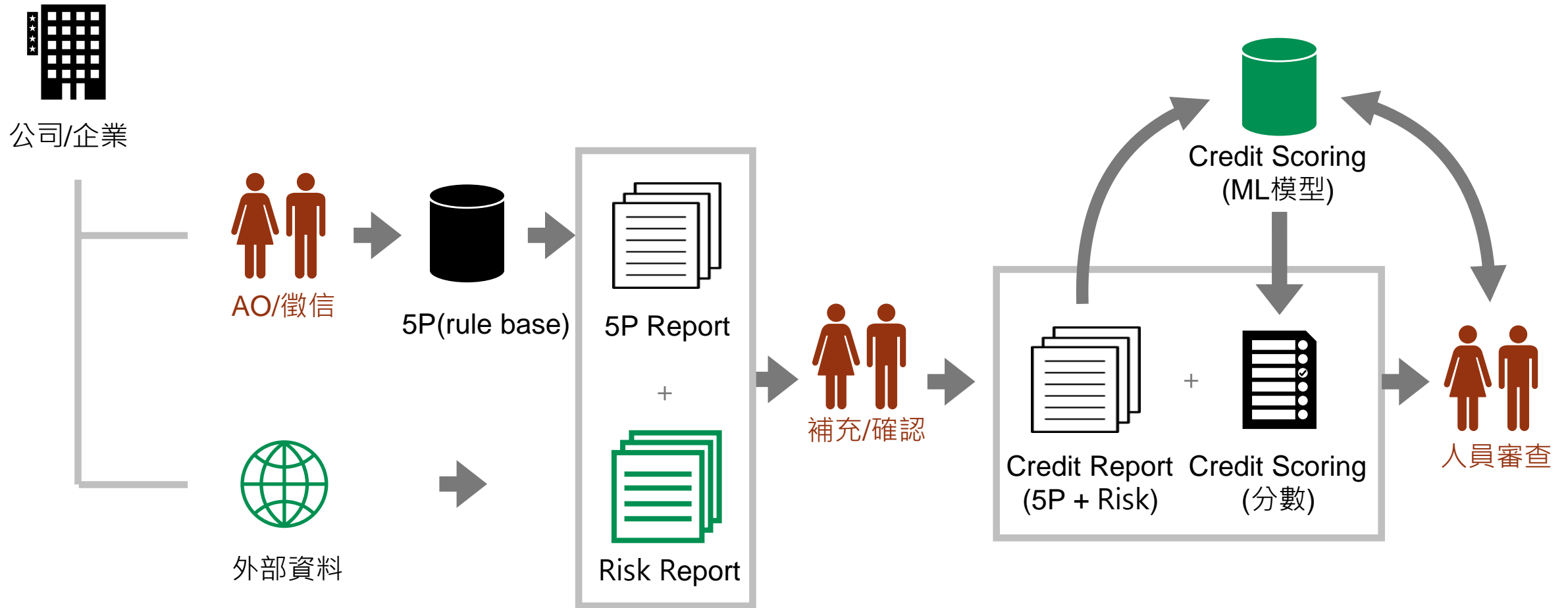


CREDIT RISK

徵審系統資料來源



Credit Risk Framework



永豐金用AI分析授信的風險管理 準確度已達9成

f 分享

💬 留言

🖨 列印

📁 存新聞

A-

A+

2017-11-16 13:01 聯合報 記者林良齊／即時報導

👍 讚 30 分享

成功大學台北辦公室過去成立30年、年久失修，今年5月與永豐金控簽定合作意象書後，永豐金捐贈經費協助修繕辦公室，今天舉辦啟用典禮，成大研發長謝孫源說，過去的產學、研發重鎮都在台南，希望透過台北辦公室啟用把觸角擴展至台北，深化產學合作。

成功大學校長蘇慧貞表示，成大陸續啟用包括在馬來西亞、越南、印尼等地中心，甚至在非洲馬達加斯加也有，預計明年也啟動歐洲的中心，但「台北反而是距離比較遠」，基地的開發宣誓要盡的社會責任不同。

蘇慧貞也說，成大將會秉持著為未來勾勒、讓民眾享受大數據年代的幸福，未來每個人到成大的每一個空間，都會有新數據的蒐集。

謝孫源指出，業界十分缺乏AI人才，因此成大也與永豐金合作，讓老師為他們上課，也期待未來在金融科技、區塊鏈技術後能夠與他們持續合作，包括客戶端的使用或金融端的風險管理等都是未來的使用範疇。

永豐金控營運長江威娜指出，目前透過初步的人工智慧分析授信的風險管理準確度已達9成，比起過去單純用統計模型的7成高了不少，未來能夠運用在中小企業的授信上，除了風險管理外，未來也會針對資產配置、壞帳警示等研究，希望能夠透過與成大合作加速上路。

<https://udn.com/news/story/7239/2822145>



EMAIL SECURITY LEVEL CLASSIFICATION

EMAIL SECURITY LEVEL CLASSIFICATION

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Outline

Highlights

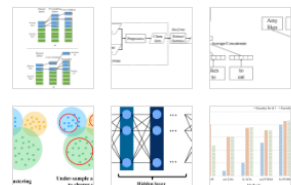
Abstract

Keywords

1. Introduction
 2. Related work
 3. Email security classification system
 4. Experiments
 5. Conclusions
- Acknowledgments
References

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Figures (11)



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Tables (23)



Engineering Applications of Artificial Intelligence

Volume 75, October 2018, Pages 11–21

Email security level classification of imbalanced data using artificial neural network: The real case in a world-leading enterprise

Jen-Wei Huang ^{a,*,} Chia-Wen Chiang ^{b,} Jia-Wei Chang ^c

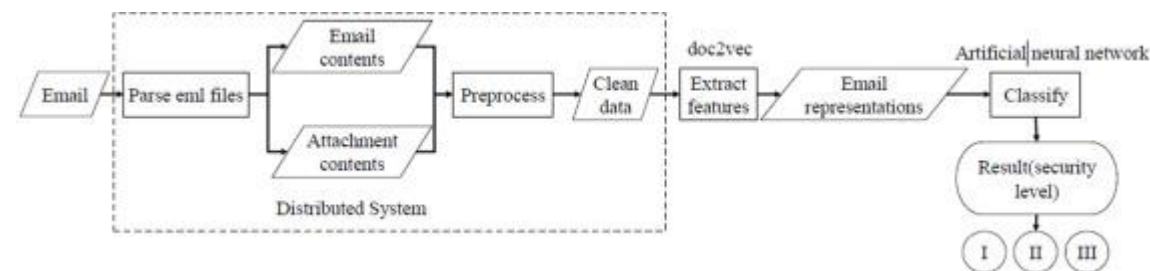
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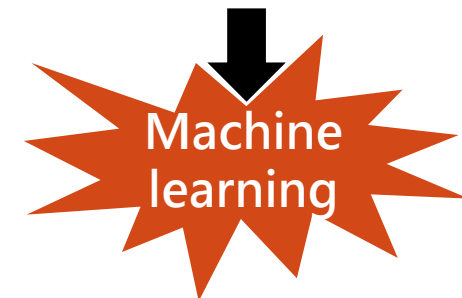
Highlights

- An effective and efficient model to classify the Email Security Level.
- Address the data imbalance problem which is common in a real-world application.
- The experimental dataset that collected from a world-leading enterprise.
- The experiments compared the well-known approaches of the semantic representation.
- The proposed system is now utilized in a world-leading enterprise.



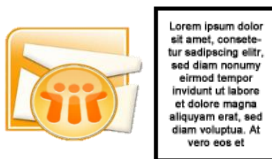
VECTOR REPRESENTATION

	w_1	w_2	w_3	..	..	..	w_{n-1}	w_n	label
D_1	0.11	0.23	0	..	..	..	0.57	0	0
D_2	0	0	0	..	..	..	0.29	0.7	1
D_3	0	0.81	0.44	..	..	..	0	0	0
D_4	0	0.37	0	..	..	..	0	0.16	1
..
D_k	..	..	..	..	..	..	..	..	1



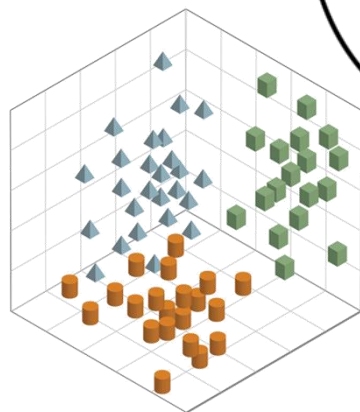
文字檔案

Input:
one document



Lorem ipsum dolor
sit amet, consete-
tur sedipiscing elit,
sed diam nonumy
aliquid tempor
invidunt ut labore
et dolore magna
aliquam erat, sed
diam voluptua. At
vero eos et

word
vectors



word2vec

將被拆解成多個字元

Model:



vector space

解析成多元維度的向量

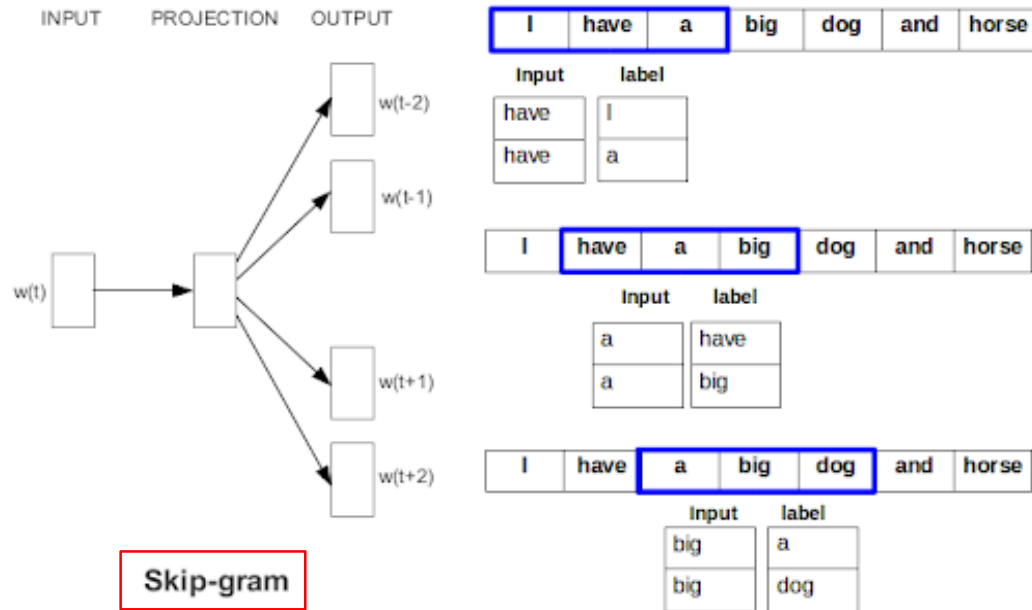
透過向量比對
找出相似的資料

most_similar('france'):

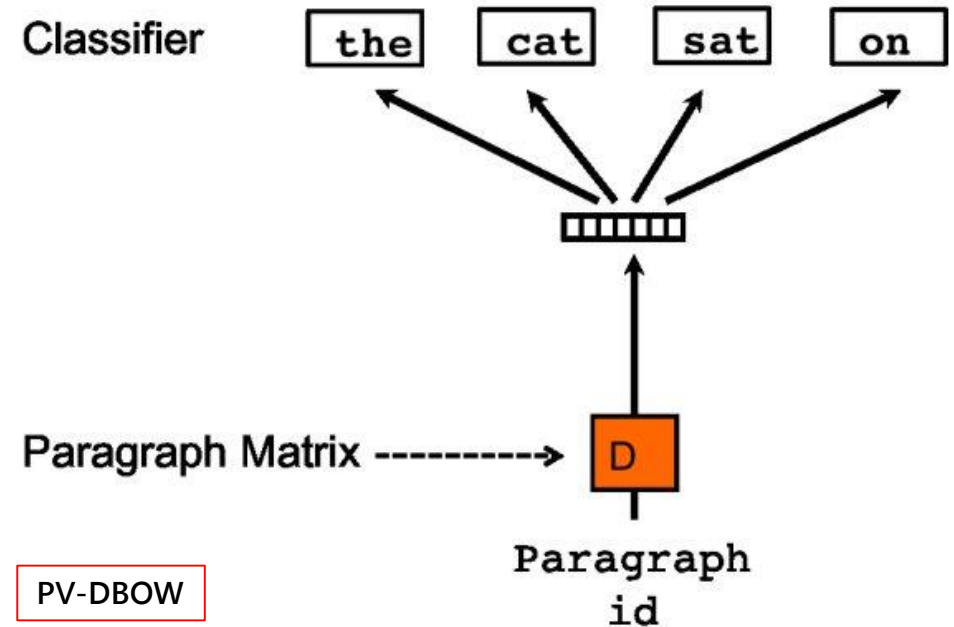
spain	0.678515
belgium	0.665923
netherlands	0.652428
italy	0.633130

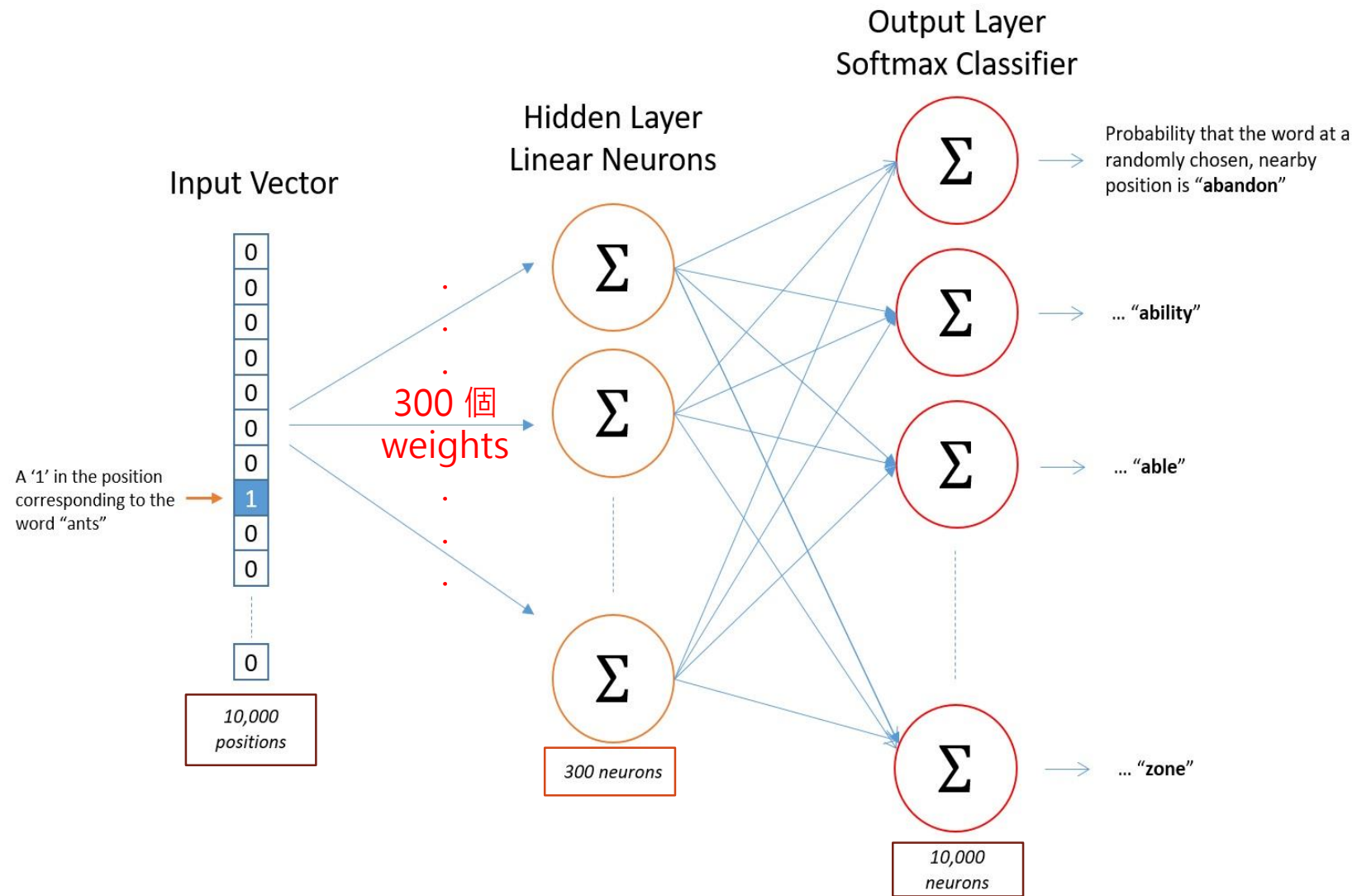
highest cosine
distance values
in vector space
of the nearest
words

WORD2VEC & DOC2VEC



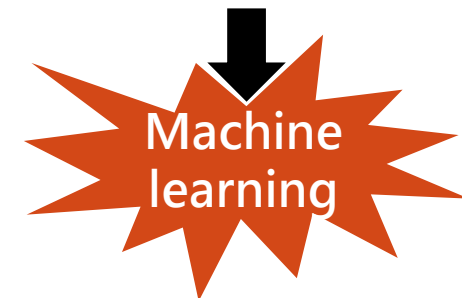
Classifier





DEEP REPRESENTATION

	w_1	w_2	w_3	..	..	..	w_{299}	w_{300}	label
D_1	0.11	0.23	0	..	..	..	0.57	0	0
D_2	0	0	0	..	..	..	0.29	0.7	1
D_3	0	0.81	0.44	..	..	..	0	0	0
D_4	0	0.37	0	..	..	..	0	0.16	1
..
D_k	..	..	..	..	..	..	..	..	1



AIR QUALITY PREDICTION

AIR QUALITY PREDICTION

Journals & Magazines > IEEE Access > Volume: 6

Adaptive Deep Learning-Based Air Quality Prediction Model Using the Most Relevant Spatial-Temporal Relations

3 Author(s) Ping-Wei Soh ; Jia-Wei Chang ; Jen-Wei Huang View All Authors

556
Full
Text Views

Open Access Comment(s)

Abstract

Document Sections

- I. Introduction
- II. Related Works
- III. Problem Definition
- IV. Prediction Model Framework
- V. Experiments

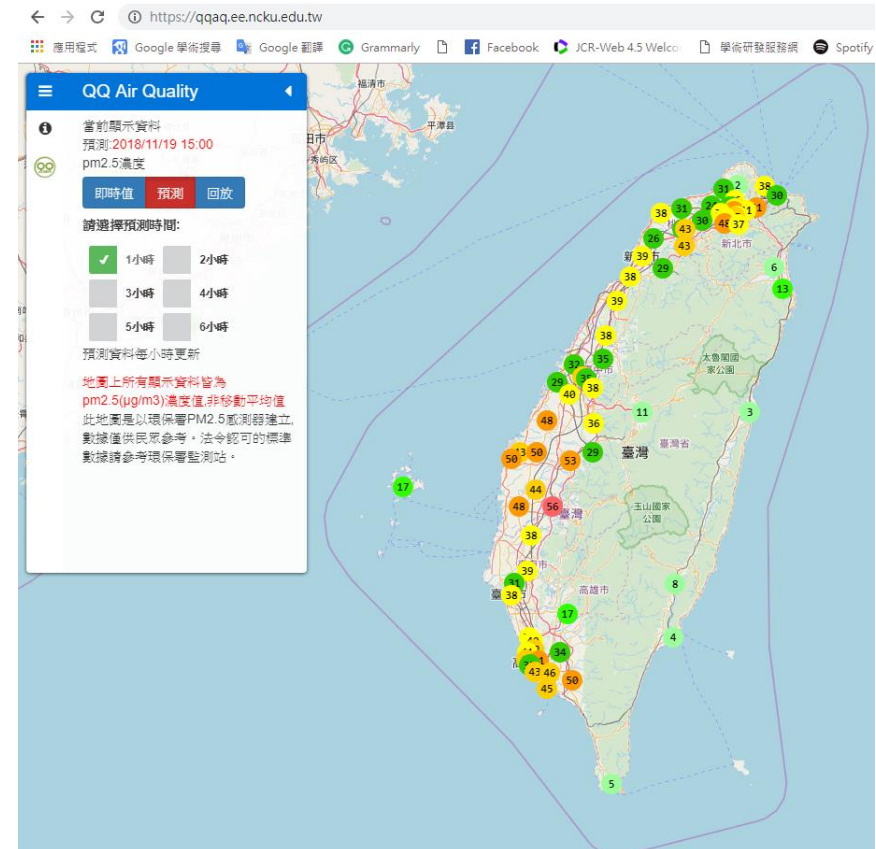
Show Full Outline

Authors

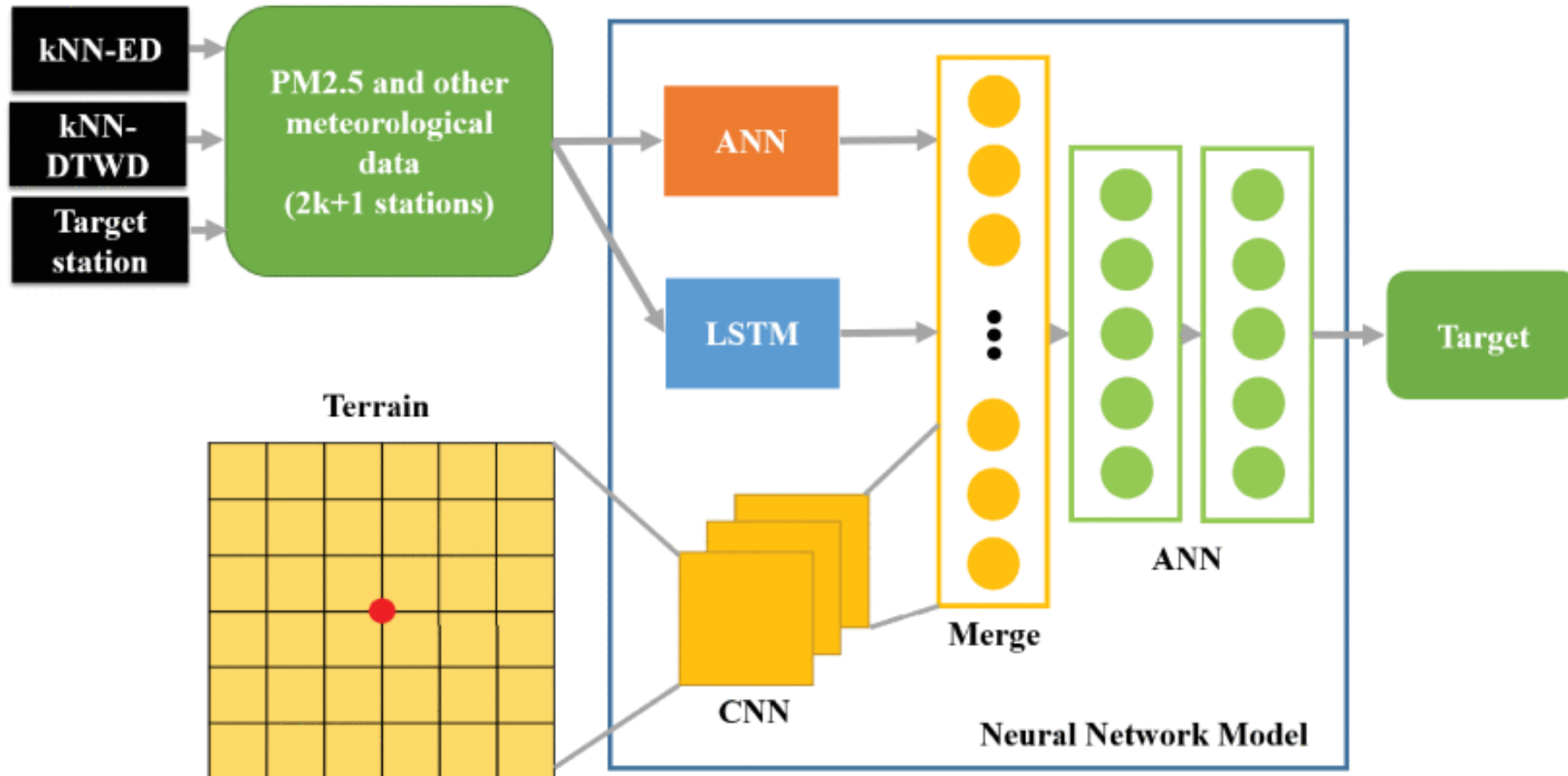
Abstract:

Air pollution has become an extremely serious problem, with particulate matter having a significantly greater impact on human health than other contaminants. The small diameter of fine particulate matter (PM2.5) allows it to penetrate deep into the alveoli as far as the bronchioles, interfering with a gas exchange within the lungs. Long-term exposure to particulate matter has been shown to cause the cardiovascular disease, respiratory disease, and increase the risk of lung cancers. Therefore, forecasting air quality has also become important to help guide individual actions. This paper aims to forecast air quality for up to 48 h using a combination of multiple neural networks, including an artificial neural network, a convolutional neural network, and a long-short-term memory to extract spatial-temporal relations. The proposed predictive model considers various meteorology data from the previous few hours as well as information related to the elevation space to extract terrain impact on air quality. The model includes trends from multiple locations, extracted from correlations between adjacent locations, and among similar locations in the temporal domain. Experiments employing Taiwan and Beijing data sets show that the proposed model achieves excellent performance and outperforms current state-of-the-art methods.

Published in: IEEE Access (Volume: 6)

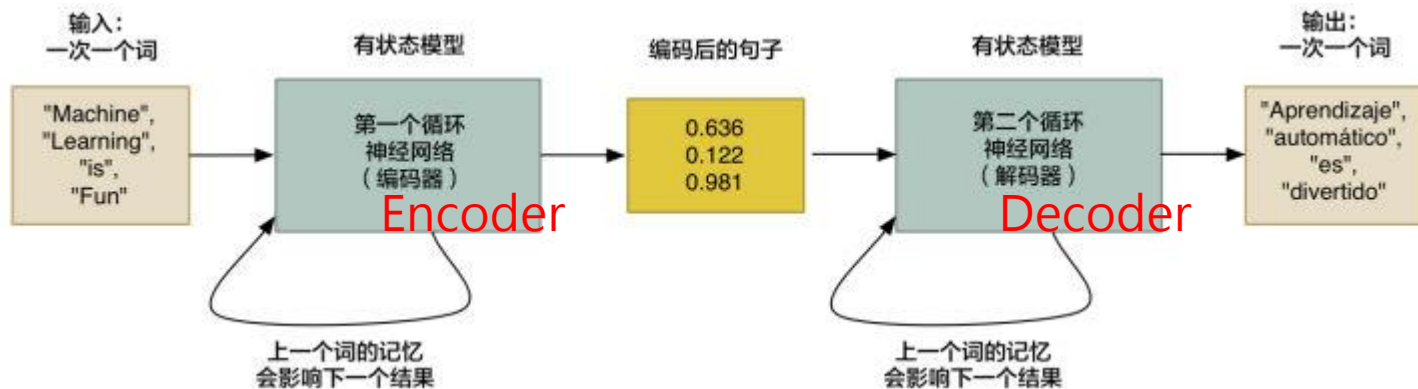
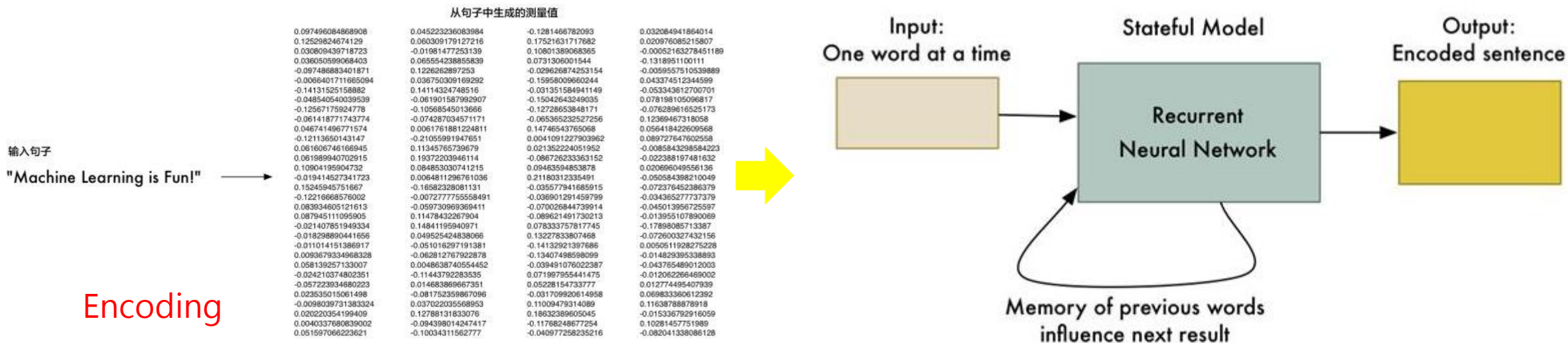


AIR QUALITY PREDICTION



深度學習的心得分享

以深度學習於機器翻譯之原理，解釋 ENCODER TO DECODER 大妙用！



機器學習模型設計的心得分享

機器學習模型設計的重點

- 預處理 (Preprocessing)
- 降維 (Dimensionality Reduction)
- 模型選擇 (Model Selection)
 - 監督式學習 (Supervised learning)
 - 分類 (Classification) : 機器給出一個類別
 - 迴歸 (Regression) : 機器給出一個數值
 - 非監督式學習 (Unsupervised learning)
 - 分群 (Clustering)

資料驅動創新應用

- 文字、聲音、影像、時序性
 - 自然語言處理
 - 語音辨識
 - 影像辨識
 - 物聯網應用
- 數值與非數值
 - 連續性
 - 離散性、類別

人工智慧 VS 大數據分析

大哉問

- **大數據分析**

- 貴在分析結果與發現
- 偏重專家經驗
- 適合特有領域專家來學習資料探勘方法

- **人工智慧**

- 貴在解決問題，需要解決方案
- 偏重模型/演算法的設計
- 以人工智慧的學者為主、專家提供經驗為輔，來設計解決方案



THANK YOU

<http://張家瑋.大平台.tw>