

## Assignment 5

### Named Entity Recognition

NER is an information extraction technique to identify and classify named entities in text. These entities can be pre-defined and generic like location names, organizations, time and etc, or they can be very specific like the example with the resume. NER has a wide variety of use cases in the business. I think gmail is applying NER when you are writing an email and you mention a time in your email or attaching a file, gmail offers to set a calendar notification or remind you to attach the file in case you are sending the email without an attachment. Other applications of NER include: extracting important named entities from legal, financial, and medical documents, classifying content for news providers, improving the search algorithms, and etc.

In fact, the **Chinese** **NORP** market has the **three** **CARDINAL** most influential names of the retail and tech space – **Alibaba** **GPE** , **Baidu** **ORG** , and **Tencent** **PERSON** (collectively touted as **BAT** **ORG** ), and is betting big in the global **AI** **GPE** in retail industry space . The **three** **CARDINAL** giants which are claimed to have a cut-throat competition with the **U.S.** **GPE** (in terms of resources and capital) are positioning themselves to become the 'future **AI** **PERSON** platforms'. The trio is also expanding in other **Asian** **NORP** countries and investing heavily in the **U.S.** **GPE** based **AI** **GPE** startups to leverage the power of **AI** **GPE** . Backed by such powerful initiatives and presence of these conglomerates, the market in APAC AI is forecast to be the fastest-growing **one** **CARDINAL** , with an anticipated **CAGR** **PERSON** of **45%** **PERCENT** over **2018 - 2024** **DATE** .

To further elaborate on the geographical trends, **North America** **LOC** has procured **more than 50%** **PERCENT** of the global share in **2017** **DATE** and has been leading the regional landscape of **AI** **GPE** in the retail market. The **U.S.** **GPE** has a significant credit in the regional trends with **over 65%** **PERCENT** of investments (including M&As, private equity, and venture capital) in artificial intelligence technology. Additionally, the region is a huge hub for startups in tandem with the presence of tech titans, such as **Google** **ORG** , **IBM** **ORG** , and **Microsoft** **ORG** .

Task –

Task 1- Create a neural network with 4 input node, 3 hidden node, 4 output nodes. Train it and test it from scratch without using any deep learning library. Create function for forward pass and backward pass using Jacobian matrix.

Task 2 – In second task you are supposed to create a named entity recognizer for the given dataset using window based neural network.