



SIMPLIFYING COMPLEX LANGUAGE

Company Background:

Alpiphany is an artificial intelligence company with the vision to transform complex technical language into plain actionable language that builds trust and transparency. Alpiphany Notes is an AI solution that takes complex jargon electronic health records EHRs and makes them into plain actionable language. An Alpiphany Note empowers patients to engage in their own health by making their very personal EHR understandable and actionable. Our mission is simply to democratize language to make any technical document understandable and accessible to everyone.

Team Size: 4-5 Students

Location: Remote, client/team meetings will be held with Google Hangouts.

Project Summary: Alpiphany would like to develop a simplified word extraction algorithm that is able to automatically generate a database of complex and equivalent simplified terms. A core component of the word extraction algorithm is a neural language model to predict simplified terms that are synonymous to complex medical terms. Take for example the medical term ‘myocardial infarction’ the neural language model would be able to predict that ‘heart attack’ is synonymous with ‘myocardial infarction’. The neural language model encodes a heterogeneous set of phrases such as tri-gram, bi-gram, uni-gram, etc. into phrase embeddings that are then used to predict the semantic similarity to more commonly occurring phrases. The objective of this project would be to develop a “simplified” word extraction algorithm to automatically generate a database of complex and equivalent simplified word(s) or phrases. Ideally this neural language model should be able to generalize across Wikipedia and should have accuracy above 80%. All IP rights will be retained by Alpiphany.

Key Skills/Technologies: A background in NLP and deep learning would be beneficial for tackling this project. Although the team will have the freedom to choose how best to solve the problem a recommendation would be to start with Word2Vec for phrases using

pointwise mutual information (PMI) and Word2Vec. In addition the team can seek guidance from the client as the client has deep expertise in AI and NLP.

Student Benefits:

- Freedom to develop a creative solution to the problem.
- Mentorship from the client on AI & NLP
- Future paid internship opportunities
- Build leadership skills by seeing the project through to completion.
- Opportunity to work on a project that is high impact and can make a difference in patients lives

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