**INTELL Literature Review**

INTELL is software product that offers a web based interface to the services offered by the Cuda-Chill framework and takes it a step further by testing the the recipes generated by Cuda-Chill on the GPU and generating and formatting the results in to a usable and meaningful model.

The background for this project starts with the very rapid development in GPU technology and its ability to process huge amounts of data in parallel thus opening a whole new frontier for the application of this technology.

Now, because of this continued rapid advancement a new issue is that in order for the software to utilize the benefits provided by GPUs, it must be designed in such a way that it supports parallel processing. Not only that but in order to fully utilize the hardware the software must be tailored for the hardware but their are many different architectures in GPUs that are very different from eachother and more keep on being developed.This means that the software is unable to keep up with the hardware advancements because not only is tailoring a piece of software to a new GPU a time consuming and resource consuming task it also requires a very high level of technical knowledge of the GPU hardware architechture.

One of the solutions to the above problem is that the vendors of the GPUs create their own manually tuned libraries and provide access to them to the programmers. This would mean that they have to update these libraries regularly and the developers would still be unable to utilize the hardware untill the vendors updated these libraries.Also since these libraries must be generic for all GPUs manufactured by that vendor they cannot be hand tailored to the specs of each GPU model .This partcular approach is being used by Nvidia in their CUBLAS library.

Another possible solution is to somehow Automate the process of code generation for atleast some commonly used kernels so that when a new GPU with different specs but similar becomes available then code hand tailored for that GPU can simply be generated. Since this approach automates the process it is the most cost effective and efficient solution , hence a lot of research has been conducted to make this possible. One such project is Cuda Chill that was started in University if Utah,USA and is still being researched there.