الجمهورية الشعبية الديمقراطية الجزائرية

République Algérienne Démocratique et Populaire

وزارة التعليم العالي والبحث العلمي

Ministère de l'Enseignement Supérieur et de la Recherche Scientifique

المدرسة العليا للإعلام الآلي - 08 ماي 1945 – بسيدي بلعباس

Ecole Supérieure en Informatique
-08 Mai 1945- Sidi Bel Abbes

Mémoire de Fin d'étude

Pour l'obtention du diplôme d'**ingénieur d'état**

Filière : **Informatique**

Spécialité : **Ingénierie des Systèmes Informatiques (ISI)**

Thème

Cross-Languages Visual Programming

with Automated Multitasking Management

Présenté par **:**

- Mr Grimes Yasser

Soutenu le : **15/09/2020**   Devant le jury composé de :

- Mr BELFEDHAL Alaa Eddine	Président
- Mr BENDAOUD Fayssal	Encadrant
- Mr KAZI TANI Mohamed Yassine	Examinateur
- Mr AZZA Mohamed	Examinateur

Année Universitaire : 2019 / 2020

Abstract

In computer architecture, the Moore's law says that the number of transistors inside a ship double every year duos increasing the performance of machines by having more computational power [Tar]. The theory was a valid path to follow since it's first posited in 1965. However, by building smaller and smaller transistors, manufacturers are about to reach the transistors limit before some quantum phenomenon such as quantum tunneling which make them irrelevant [Pow], limiting the possibility of doubling the size of a chip and pushing the manufacturers to search for other designs and software solutions. An escape-route was to provide multiple cores inside a ship that enable multiple processes which in turn can run multiple threads. This approach can indeed offer more computational power but it can be difficult for software engineers to manage the resources shared between all of these units and threads. In this project we try to offer a solution to this problem by offering a cross-language visual programming tool in python that detect shared resources and reduce their complexity.