**Google Summer of Code 2018 Proposal**

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Organization: LibreOffice

Proposal Topic: Support multi-coloured font formats

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**Introduction**

This proposal submission is the for the LibreOffice GSoC project: **Support multi-coloured font formats**. The goal of the project is to add multi-coloured glyph functionality to text. This requires parsing the font tables related to text needed for rendering color, as suggested in the idea summary, either COLR/CPAL or SVG tables.

**Project Goals and Timeline**

The ultimate goal of the project would be to have multi-coloured glyphs rendered on screen. I am roughly familiar with the concepts of glyphs and text rendering through an assignment in my introduction to computer graphics course I am currently taking. However, I will initially take the time to fully understand these concepts. In particular, I aim to have a detailed report on the feasibility of successfully implementing either types of color tables by the end of phase 1 (June 11th). I will choose which route will be best to start implementing in phase 2. The goal for phase 2 (June 15th -July13th) is to have the multi-coloured glyph functionality roughly working to submit for review. I do not expect the functionality to be robust at this point. In case my initial plan of action does not pan out, this would be the time to regroup and come up with another plan. In phase 3 (July 13th to August 14th), the goal is to fix any bugs, completed documentation and if time permits run some tests on accuracy and robustness.

Although I have limited experience with rendering text, I thoroughly enjoyed my assignment on this topic. We used that assignment to learn about Bezier curves and the OpenGL rendering pipeline in C++. The deliverable for the assignment was the outline of letters displayed on a screen in multiple fonts. I would love to continue learning about modern text rendering and fonts though this project or in any other form.

**About Me**

I am in my third year of an after degree in computer science at the University of Calgary, in Calgary, Alberta, Canada. I have Bachelors of Arts in psychology (First Class Honours, 2013) and linguistics (with distinction, 2013). For the past 3 years, I have been working as a research assistant for the Virtual Touch and Visualization Tools Research Lab at the University of Calgary, where I am involved with a few projects. I am part of a small team that is working with a client to produce a neonatal ultrasound simulator that simulates head, heart, bladder and lung ultrasound procedures. I am building the software using a user centered design process, which includes user research, sketching, prototyping, building and testing. For my other project, I am developing a set of automated surgical performance metrics for our in-house temporal bone surgical simulator. I am integrating these metrics in an interface as a stand-alone module that will be added to the simulator. This would allow for performance evaluation without the presence of an expert surgeon. All the programming I do in the lab is in C++. I was fortunate enough to be able to present my research project at a conference and have my work published in a journal. You can view my CV at my website, [www.kowther.com](http://www.kowther.com), for more detail.

In addition to my introduction to computer graphics course, I have also taken courses in data structures, algorithm design, software engineering, human computer interaction and programming paradigms.

I have been wanting to contribute to open source for a while but did not know where I should start. I believe that this would be a great introduction to open source software development. This would also be an opportunity to acquire professional software development skills.

**Important Notes**

I will be presenting my current research from my research lab at a conference on June 19-23rd. I will be taking those days off.