

**State University Of Bangladesh**

**Department of Computer Science and  
Engineering**

**Parallel Processing and Distributed System Lab  
CSE-0410**

## **THESIS PROPOSAL**

**Application of Parallel Computing Models for  
Image Processing in Smartphone Devices**

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## 1 Research Topic

Application of Parallel Computing Models for Image Processing in Smartphone Devices.

## 2 Advantages of My Research

This research will increase the Critical thinking of this author and this research will help to build up analytical skills through hands-on learning. And other advantages are:

- Defining academic, career, and personal interests.
- Expanding knowledge and understanding of a chosen field outside of the classroom.
- Developing one-on-one connections with distinguished faculty in their field.
- Building community with peers, faculty, and organizations on- and off-campus.

## 3 Features of My Research

The objective of the problem will be studied properly. The author will reach the conclusion with reference and the long-term studies. This research will be completed in the form of effective and analytic information.

## 4 Problem Statement

RQ1: What parallel computing architectures and parallel programming models are available now on mobile systems and personal mobile devices to apply complex CPU-GPU computing?

## 5 Motivation of My Research

Since 2011 the potential of parallel processing on mobile devices caught the attention of academia and the mobile application industry, and new research and practical applications begun to appear on mobile application developers and Open Source communities' websites and leading mobile platform application marketplaces. Now it is 2021 there has been huge progress in the mobile applications developing industry and business. The motivation for the study emerged from these scenarios.

## **6 Proposed Methodology**

The research method for this study consisted of a search of available multivocal literature for the topics of the research. The following sources for literature- and information search will be used:

- IEEE Xplore Digital Library.
- ACM Digital Library.
- Google Scholar search.
- The State University of Bangladesh Library.
- Google internet search.

## **7 Evaluation of Effectiveness of My Research**

The main source of research will come from scientific publisher organizations such as IEEE and ACM. However, to increase the sources of knowledge, information from practice (e.g. programming libraries, manufacturer's references) will be included in the research paper. This research will help future mobile application developers, the mobile application development industry, and academic institutions.

## **8 Importance of My Research**

Through this research, we will find answers some of the significant questions. As well as how parallel computing and the parallel architecture computing is helping to build up the mobile application development industry and will learn more about the extent of this contribution.

## 9 Scopes and Limitations of My Research

**The scopes of my research are:**

- Developing high-performance mobile applications.
- Understanding the image processing in mobile devices.
- Implementation of the research result in the real world.
- Creating a new research topic and field.

**The limitations of my research are:**

- Android operating system and IOS operating system are different so some of the results may conduct conflict.
- Some hardware and lab limitations, so real-time testing may not occur.
- Some of the mobile CPU-GPU uses different architecture therefore some results can appear partially wrong.