

MSE DISSERTATION

GUIDELINES FOR STUDENTS

The categories of suitable MSE projects are:

- **Product-based**

- involving the application of software engineering techniques to the specification, analysis, design, development, or testing of a particular product. Any technique or combination of techniques could be applied to- or around – this product. There might be study of requirements, one or more specifications, some design work, some analysis, some programming or some testing.
- demonstrates a new or innovation approach to solving an existing problem. The project must a) identify a research question, b) present a solution to the problem, c) implement and demonstrate a substantial portion of the solution, and d) validate the solution.
- Examples:
 - i. Design a framework for delivering web applications to mobile services. Compare with other frameworks and show the advantages and uniqueness of your framework
 - ii. An object-oriented design and implementation with some accompanying analysis
 - iii. Prototypes of Software Engineering tools for use by software developer - Design and implement a new tool for automatic code generation (or testing, verification, requirements elicitation, etc.). Compare with other similar tools and show the advantages and uniqueness of your tool

- **Theory-based**

- involving the extension of a particular technique, or a combination of techniques, for use for a particular class of application
- requires the student to carry out a theoretical or statistical solution to a significant research question.
- Examples:
 - i. A customized profile for UML
 - ii. Propose a design pattern language for a new application domain. Show that the patterns in your language are new and different from known patterns
 - iii. Addressing a traditional problem using an innovative approach or original solution

iv. Design and implement an efficient index scheme for object-oriented databases. Show how your solution is an improvement over other approaches

- **Process-based**

- involving an examination or assessment of particular techniques, their development and application, in academia or in industry.

- Examples:

- i. A description and critical analysis of the software testing process for a particular product line

- ii. A case study in requirements engineering