CHAPTER 7

CONCLUSION AND FUTURE WORK

The purpose of this research was to provide insight into how sophisticated imputation techniques are and this facilitates the understanding. It also integrates between statisticians and software engineers to make succession effort estimation. This research exploits Genetic Programming estimates effort based on the observation that the effort can be formulated as an optimization problem. When estimation is done by expert judgment or by parametric estimation the uncertainty and vagueness in software effort drivers could influence it. Algorithmic estimation models often expresses cost drivers through linguistic assessments and high level concepts for which single specific measurement scale is not available. This motivates the use of a hybrid estimation method to handle imprecise data.

Accurate effort estimation is the state of art of the Software Engineering activities and of course it is a complex process. It is well understood that the accuracy of the individual effort estimation models can be defined based on understanding the calibration of the software data and this has been confirmed using a hybrid estimation model in this research. A unique form of graphical representation schemes and Genetic approach has been used for enhancing the estimation schemes of COCOMO II. The enhancement has been proved and clearly compared with the traditional COCOMO II in terms of the performance validation factors such as Magnitude of Relative Error (MRE), Mean Magnitude of Relative Error (MMRE), Root Mean Square (RMS) and Relative Root Mean Square (RMS
& RRMS). The observations and analyzes over the obtained results may encourage the researchers to enhance other effort estimation schemes to further levels.

The algorithm used is adaptable to dynamic factors like minor or abrupt project plan changes or other disturbances. The test runs were performed with utmost care for tuning the Genetic Model Parameters. Better enhancement in performance is achieved by simply running the algorithm for a long period with variations in Selection, population or mutation rate. This concludes that GA’s are suitable for such complex problems. The above evidence proves that flexibility and robustness was improved because of such integration in representation. Since proper choice of representation is used and genetic operators are tailored the critical performance of the genetic algorithm is improved. In conclusion the hybridization representation model dictates the success of any project is reliable on accurate estimations. This reliability ensures significantly higher probability of project success rate.

This proposal offers a new and exciting hybrid approach in the software effort estimation domain. It is first of its kind, which integrated the graphical approach with the existing algorithmic approach. The issues discussed and considered in this work concentrated on necessity to a certain extent then being a generic model, so that there is enough scope for further extension of the proposed idea.

This proposed model could be extended to deal the SDLC phase-specific issues rather than just offer one model for different phases in which the roles and responsibilities along with outcomes are entirely different. This modular approach will simplify the monitoring of Software project development stages and assessment against budgeted and actual costs at every stage of the development. This style of assessment will certainly aid to
compromise and compensate the schedule slippages and budget oscillations at the appropriate stages without prolonging the problematic issues.

Likewise, the same approach may also be extended to deal the technology-specific issues, which is very essential for the present day world with abundant technologies for any type of solutions. Additionally, it can also be extended to deal the most important software engineering issue as the trade-off between schedules, cost and quality and of course the outcome would be a sophisticated decision support system for effective software project management.

The proposed approach could also be extended for developing project-specific effort estimation models, which are more suitable for variety of projects, varying in terms of nature of application, size and related factors. These models will improve the applicability, which will enable to offer accurate human judgments in case of software project management. In addition to that these models will provide greater control over project costs ensure reliable project delivery dates.