

1. Introduction

- existing problem in field of your interest
- goal (very specific and measurable)
- objective function
 - $f(u_1, u_2, \dots, u_n, p_1, p_2, \dots, p_n) \rightarrow \min/\max$,
 - where
 - u_1, u_2, \dots, u_n – control variables
 - p_1, p_2, \dots, p_n – variables you cannot control

Example:

- $e(ep, \text{layers}, ir, N_{pic}) = N_{cor} - N_{incor} \rightarrow \min$,
- where
- e – picture classification error
- N_{cor} – correctly classified picture number
- N_{incor} – incorrectly classified picture number
- ep – number of epochs
- layers – number of layers
- ir – image resolution
- N_{pic} – training set elements number
- tasks you need to solve in order to achieve your goal

2. Approach for solution

- Approach for solution should describe
- detailed description of the processes (IDEF0);
- *detailed uncertainty description (if you have any);
- ❖ Situation uncertainty – when the system does not have enough data about current situation
- ❖ Algorithm uncertainty – when the system does not have the algorithm for input data handling. (a command which does not exist in the code)
- ❖ Model uncertainty – when system does not have a model of object behavior. (when the equipment was changed (modernized) and the new one was not formalized yet.)
 - general algorithm for the solution;
 - components needed for the solution (with argumentation);
 - NN, Formula (you might have this), KB, Database, Server/Client
 - components interaction schemes.
 - Swimlane Diagram and/or Sequence Diagram

3. Application development

- Application development should include:
- Step-by-step detailed description of each module
- The most important code listings (very short blocks, the complete code will be added in the appendices)
 - User interface (forms, pages, console...)
 - Output data / messages screenshots

4. Conclusion

- Relevant, honest results
- what you managed to successfully implement;
- what you did not manage to successfully implement;
- Understandings, which you have got during this work
- Plans about how you are going to use these results for future developments

5. Appendices

- Complete codes, References, etc.