**Z-Transform Convolutional Neural Network**

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**Abstract**

*An abstract is one of the most important parts of the report. It should be written in a brief and factual manner with no more than 50 words, and very often one paragraph. It should give one sentence clear description of project, then the goal and objective(s), the motivation and/or the significance of the project. Then it should give one sentence of the main technical challenge(s), and how did you overcome this challenge/difficulty. Finally, one sentence gives the final result, most importantly indicate if the goal was accomplished.*

**1. Introduction**

One or two paragraph gives the background information (provide references if needed, and list these reference in the Reference Section [1]) and provides further detailed information of the project goal and objective(s), technical challenges and /or difficulties, and brief description of how to approach and solve this challenge/difficulties.

**2. Summary of the Original Paper**

**2.1 Methodology of the Original Paper**

First give one or two sentences to point out what you want to provide.

Include block diagram, flow chart.

**2.2 Key Results of the Original Paper**

Show/copy several key results and conclusions in the original paper.

**3. Methodology**

Introduce the approach, methodology, architecture used in the students’ project. Describe if and how it may be different from the original paper. If the original paper is simple, students need to do more work and describe what is it. For complex original papers, it may be enough to do a partial reproduction, which may not yield very good results - that is OK.

First give one or two sentences to point out what you want to provide to the reader in this section and how these material is organized. Then very often you want to cover the following subjects in this section.

**3.1. Objectives and Technical Challenges**

Give the details..

**3.2. Problem Formulation and Design**

Give the detailed, one-to-one correspondence description of your design to attach/solve the problem and to achieve the objectives and the goal of the project:

1. Use engineering language and mathematical formulation;
2. Provide system drawings, block diagrams, and/or circuit schematics for your software or hardware design, as applicable to your project;
3. Include flow charts and pseudo code descriptions for the step-by-step discussion of your software design.

**4. Implementation**

One sentence to describe the organization of this section, then provide detailed discussion on your implementation.

**4.1. Deep Learning Network**

Provide the following descriptions and discussions:

1. Architectural block diagram(s).
2. Training algorithm details
3. Flowchart(s)
4. Data used

**4.2. Software Design**

Provide the following description and discussion:

1. Flow chart or flow charts, very often you should provide one top level flow chart, then additional flow charts for detailed lower level implementations.
2. Algorithm, e.g., description of the step by step implementation.
3. Pseudo code for each section of the implementation.

**5. Results**

**5.1. Project Results**

Provide detailed

1. Description of results
2. Figures, plots
3. Testing, verification

**5.2. Comparison of Results**

Provide detailed comparison between results of the original paper and the students’ project

1. Figure, plots showing differences in things such as training length/time, training/verification error, test error, other.

**5.3. Discussion of Insights Gained**

Provide detailed discussion, regardless of the actual results: why are your results different, did you used smaller dataset, did you use different hyper-parameters, number of epochs different?

**6. Conclusion**

Provide summary of this project, briefly review the statements made in the abstract, in particular, if the enumerated objectives and goal are achieved. Emphasize and highlight the lessons learned, point out the direction for further improvement if needed.

**6. Acknowledgement**

Provide acknowledgement if needed, such as support, help, or assistance from someone. These support, help, assistance are crucial.

**7. References**

Include all references - papers, code, links, books.

[1] Link to your bibucket or github

[2] H. Li, “Author Guidelines for CMPE 146/242 Project Report”, *Lecture Notes of CMPE 146/242*, Computer Engineering Department, College of Engineering, San Jose State University, March 6, 2006, pp. 1.

[12] ...

**8. Appendix**

**8.1 Individual student contributions in fractions - table**

|  |  |  |  |
| --- | --- | --- | --- |
|  | CUID1 | CUID2 | CUID3 |
| Last Name |  |  |  |
| Fraction of (useful) total contribution | 1/3 | 1/3 | 1/3 |
| What I did 1 |  |  |  |
| What I did 2 |  |  |  |
| What I did 3 |  |  |  |

8.2 If/as needed: additional diagrams, source code listing, circuit schematics, relevant datasheets etc.