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**Final Year Project Form - Spring 2021**

**DEADLINE FOR SUBMISSION: May 05, 2021**

**Submissions to: Syed Atif** **Moqurrab**

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**Fake news detection on social media platform**

**Submitted by**

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**<BSCS-6A>**

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# Section – 1

# 1.1 Project Identification

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| FYP Number: | | | | | | | |
| (for office use only) | | | | | | | |
| Project Title: | | | | | | | |
| **Stance detection in TV news shows** | | | | | | | |
| Supervisor: | | | | | | | |
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|  | |  | | | | | |
| What technology is core to your product? *(Please mark* X *where applicable)*  |  |  |  | | --- | --- | --- | | [ ] 3D/4D Printing | | [ ] Augmented Reality / Virtual Reality | | [ x ] Big Data, Artificial Intelligence | | [ ] Blockchain | | [ ] Cloud | | [ ] Neurotech | | [ ] Robotics | | [ ] Shared economy | | [ ] The Internet of Things | | [ ] Wearables, Implantables | | [ ] Others (specify): |  | | |  |  | |  What is the target market(s) for the products? *(Please mark* X *where applicable)*  |  |  |  | | --- | --- | --- | | [ ] Automotive, aviation, marine | | [ ] Business, marketing, finance | | [ ] Defense, security, safety | | [ ] Education and training | | [ ] Environment, water management | | [ ] Entertainment, tourism, sport/recreation | | [ ] Food, livestock, agribusiness | | [ ] Healthcare | | [ ] Infrastructure, housing & transport | | [ ] Mining equipment technology & services | | [ ] Oil, gas, energy | | [ ] Telecommunication | | [ ] Textiles, clothing, footwear | |  | | [ ] Others (specify): | Social Media | | |  | |  | | | | | | | | |
| Which Sustainable Development Goals (SDGs) are covered by the products? *(Please mark X where applicable.)*  |  |  | | --- | --- | | [ ] 1. No Poverty | [ ] 2. Zero Hunger | | [ ] 3. Good Health & Well-Being for people | [ ] 4. Quality Education | | [ ] 5. Gender Equality | [ ] 6. Clean Water & Sanitation | | [ ] 7. Affordable & Clean Energy | [ ] 8. Decent Work & Economic Growth | | [ ] 9. Industry, Innovation & Infrastructure | [ ] 10. Reduced Inequalities | | [ ] 11. Sustainable Cities & Communities | [ ] 12. Responsible Consumption & Production | | [ ] 13. Climate Action | [ ] 14. Life Below Water | | [ ] 15. Life on Land | [ ] 16. Peace, Justice & Strong Institutions | | [ ] 17. Partnerships for the Goals |  | | | | | | | | |
| Other Organizations Involved in the Project: *(Please identify all affiliated organizations collaborating in the project and describe their role/contribution to the project.)* | | | | | | | |
| **Industrial Organizations:** | | | | | | | |
| *#* | *Organization Name* | | | *Role / Contribution* | | | |
|  |  | | |  | | | |
|  |  | | |  | | | |
| **Academic Organizations:** | | | | | | | |
| *#* | *Organization Name* | | *Role / Contribution* | | | | |
|  |  | |  | | | | |
|  |  | |  | | | | |
| **Other Organizations:** | | | | | | | |
| *#* | *Organization Name* | | | *Role / Contribution* | | | |
|  |  | | |  | | | |
|  |  | | |  | | | |
| Key Words: *(Please provide a maximum of 5 key words that describe the project. The key words will be incorporated in our database.)* | | | | | | | |
| Fake News, Deep learning, Text representation, Text classification, Stance detection. | | | | | | | |
| Project Status: (Please mark X) [ x ] New [ ] Modification to previous Project  [ ] Extension of existing project | | | | | | | |
| The Problem:*(Describe the problem / opportunity / gap / need that you want to address/solve. At least 180 words.)* | | | | | | | |
| The increasingly rapid pace of spreading fake news is considered a problem in conjunction with the increasing number of people who are relying upon social media to get news. That earns widespread attention from research communities due to the negative impact and influence of fake news on public decisions. The project aims to illuminate the current research on fake news problem and the process of detecting fake news using deep learning approaches. | | | | | | | |
| Following are some of the well-known (identify the best known if possible) existing solutions to this problem. Their known strengths and weaknesses are also provided.*(At least 180 words.)* | | | | | | | |
| Deep Learning: Convolutional Neural Network (CNN),Long Short-Term Memory network (LSTM) and Bidirectional LSTM (Bi-LSTM). | | | | | | | |
| Our solution will address the following weaknesses of above mentioned solutions.*(At least 180 words.)* | | | | | | | |
| This is part of the project. | | | | | | | |
| We will use the following techniques to achieve improvements mentioned above.*(At least 150 words.)* | | | | | | | |
| This is part of the project. | | | | | | | |
| Synopsis:*(A brief description of the idea, in non-technical language, explaining product benefit, target market, basic technology, commercial partners, investors, and potential customers. Minimum 180 words.)* | | | | | | | |
| News currently spreads rapidly through the internet. Because fake news stories are designed to attract readers, they tend to spread faster. For most readers, detecting fake news can be challenging and such readers usually end up believing that the fake news story is fact. Because fake news can be socially problematic, a model that automatically detects such fake news is required. | | | | | | | |

# Section – 2

# 2.1 Background

|  |
| --- |
| **Scope of the Project:** |
| To develop/evaluate a stance detection system on the recently released Fake News Challenge Stage 1 (FNC-1) dataset introduced the benchmark FNC stage-1: stance detection task.  To develop/evaluate fake news detection system based on existing approaches. |
| **Literature Review:** *(Detailed summary of what all has been done nationally/internationally in the proposed area quoting references and bibliography.* ***Minimum 900 words.****)* |
| 1. Singhania S., Fernandez N., Rao S. (2017) 3HAN: A Deep Neural Network for Fake News Detection. In: Liu D., Xie S., Li Y., Zhao D., El-Alfy ES. (eds) Neural Information Processing. ICONIP 2017. Lecture Notes in Computer Science, vol 10635. Springer, Cham. <https://doi.org/10.1007/978-3-319-70096-0_59> 2. Saikh T., Anand A., Ekbal A., Bhattacharyya P. (2019) A Novel Approach Towards Fake News Detection: Deep Learning Augmented with Textual Entailment Features. In: Métais E., Meziane F., Vadera S., Sugumaran V., Saraee M. (eds) Natural Language Processing and Information Systems. NLDB 2019. Lecture Notes in Computer Science, vol 11608. Springer, Cham. <https://doi.org/10.1007/978-3-030-23281-8_30> 3. Jwa, H., Oh, D., Park, K., Kang, J. M., & Lim, H. (2019). exBAKE: Automatic fake news detection model based on Bidirectional Encoder Representations from Transformers (BERT). Applied Sciences (Switzerland), 9(19), [4062]. <https://doi.org/10.3390/app9194062> 4. Thota, Aswini; Tilak, Priyanka; Ahluwalia, Simrat; and Lohia, Nibrat (2018) "Fake News Detection: A Deep Learning Approach," SMU Data Science Review: Vol. 1 : No. 3 , Article. Available at: <https://scholar.smu.edu/datasciencereview/vol1/iss3/10> |
| **Current state-of-the-art:** *(Describe current-state-of-the-art related to your topic.* ***Minimum 180 words****)* |
| A Novel Approach Towards Fake News Detection - Deep Learning Augmented with Textual Entailment Features |
| **Motivation and Need:** *(Please describe the motivation and need for this work.* ***Minimum 180 words.****)* |
| The phenomenal growth in web information has nourished research endeavours for automatic fact checking, or fake news and/or misinformation detection. |

# 2.2 Outcomes and Benefits

|  |
| --- |
| Expected Outcomes: *(Provide a list of proposed project outputs including publications, databases etc.)* Publication and Dataset. |
| Key Beneficiaries: *(Please identify clearly the potential customers/beneficiaries of the project.)* Politics, Entertainment, Sports, Economics |
| Technology Transfer/Diffusion Approach: *(Please describe how the outputs of the project will be transferred to the beneficiaries/customers. Minimum 180 words.)* Scientific Journal/Conferences, Github. |

# 2.3 Objectives

|  |
| --- |
| *(Please describe the measurable objectives of the project and define the expected results. Use results-oriented wording with verbs such as ‘to develop.’, ‘to implement.’, ‘to research.’, ‘to determine. ‘, ‘to identify.’* ***The objectives should not be statements and should actually specify in simple words what the project team intends to achieve (something concrete and measurable/ deliverable). Fill only those objectives that are applicable to the proposed project****.)* |
| **Research Objectives:** *(if any)*  **Academic Objectives:** *(if any)*  **Commercial Objectives:** *(if any)*  **Other Objectives:** *(if any)* |

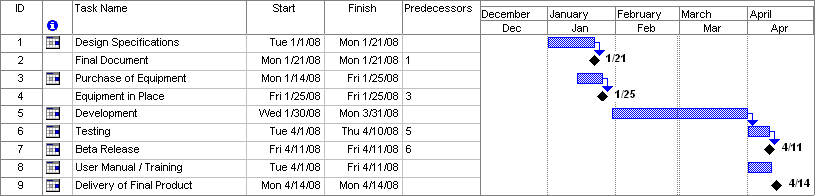
# 2.4 Research Approach

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Development / Research Methodology: *(Please describe the technical details and justification of your development and research plan. The block diagrams, system flow charts, high level algorithm details etc. have to be provided in this section.* ***Minimum 900 words.****)* | | | | | | |
| This is part of the project. | | | | | | |
| Key Milestones and Deliverables: *(Please list and describe the principal milestones and associated deliverables of the project. The timing of milestones is also to be shown in the Gantt chart in Annexure-A.* ***Quarterly deliverables are preferred****.)* | | | | | | |
| The information given in this table will be the basis of monitoring and release of funds by the Ignite. | | | | | | |
| *No.* | | *Elapsed time from start (in months) of the project* | | *Milestone* | | *Deliverables* |
|  | 3 months | | Literature Review | | Documentation | |
|  | 6 months | | Design Specifications | | Documentation | |
|  | 9 months | | Development | | Script//Code | |
|  | 12 months | | Testing | | Script/Code | |
|  | 15 months | | Writing | | Documentation | |
|  | 18 months | | Release | | None | |

# Annexure–A: Project Schedule / Milestone Chart

***(Project schedule using MS-Project (or similar tools) with all tasks, deliverables, milestones, cost estimates, payment schedules clearly indicated are preferred.)***

***Example:***



**SPECIMEN**