Faculty Profile

Name	Dr. Sheetal Sonawane
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[Sheetal Sonawane- LinkedIn](#)

[Sheetal Sonawane-Google Scholar](#)

Educational Qualifications

Degree	University/Institution	Year of Passing
Ph.D.	COEP, Savitribai Phule Pune University	2018
M.E. (Computer Engg.)	PICT, Savitribai Phule Pune University	2006
B.E. (Computer Engg.)	PREC Loni, Savitribai Phule Pune University	2000

Professional Experience

- Associate Professor - *Computer Engineering. Department, Pune Institute of Computer Technology, Pune (July 2011 – Present)*
- Assistant Professor - *Computer Engineering. Department, Pune Institute of Computer Technology, Pune (Oct 2010 – June 2011)*
- Lecturer - *Computer Engineering. Department, Pune Institute of Computer Technology, Pune (Jan 2003 – Sep 2010)*
- Lecturer - *Computer Engineering. Department, SVMEC, Sinnar, Nasik (Apr 2001 – Dec 2002)*

Research Publications

- Extractive Summarization using Semigraph (ESSg) , Evolving Systems, Springer, 2019/9, 409-424
- Graph based representation and analysis of text document A survey of techniques, *International Journal of computer applications, 2014, 96.19.*
- Context-based co-reference resolution for text document using graph model (Cont-graph), *International Journal of Knowledge Engineering and Data Mining, Inderscience, 4.1, 2016*
- Context-based multi-document summarization. Contemporary advances in innovative and applicable information technology, Advances in intelligent Systems and Computing, Springer, 2019, 812

- The role of coreference resolution in extractive summarization, *2016 International Conference on Computing, Analytics and Security Trends (CAST)*, Pune, India (**Best Paper Award**)
- Entity-based co-reference resolution with name entity recognition using hierarchical classification, IEEE Indicon 2015
- Sentiment analysis of Twitter data: a survey of techniques, *International Journal of computer applications, 2016*

Books Published

- [Foundations of Data Science Based Healthcare Internet of Things](#) - *Springer*
- [Information Retrieval and Natural Language Processing - A graph theory approach](#) - *Springer*
- Semigraphs and their applications (one Chapter) - *Academy of discrete mathematics and applications*
- Big - Data Analytics (Two chapters) – *PHI Publication*
- Graph Learning and Network Science for Natural Language Processing (One Chapter) – CRS Press

Research Experience

Extractive Summarization using Semigraph: (collaborated with Dr. Deshpande and Dr. Athawale from Mathematics dept, COEP)

Description: This thesis work proposed an innovative application of semigraph which includes the processes of Semigraph construction and sentence extraction. Multilevel association among significant features of the text document can be represented using semigraph. Multi vertices property of semigraph helps in finding linear and nonlinear relationship between features. Some variation in semigraph in context of text document is proposed. Challenge of measuring and analyzing performance is countered using proposed HITS ratio and ROUGE measures. Multi directed mapping among summaries generated using existing methods is used to calculate effective index.

Classifying Structured & Unstructured Data elements using Natural Language programming and Deep Learning Algorithms
Company Name: Ardent Privacy
Role: Chief coordinator
Technologies Used: Python
Project Description:
- Phase-1: Literature Work and dataset creation. Domain (Finance, Education, and health) wise dataset creation for structured and unstructured data.
- Phase-2: Pre-processing of data elements and building a context-aware Named Entity Recognition Model for structured and unstructured data elements.
- Phase-3: Analysis, Performance Testing of system and report generation.

Sentiment analysis of Twitter posts about COVID-19 precaution dose between July 2022 and November 2022
Organization: ICMR- NARI (Govt of India)
Role: Chief coordinator

Description: This research work analysed the sentiments and emotions of Twitter posts using machine learning. This study aims to explore the perceptions and emotions related to the precautionary dose of COVID-19 vaccine uptake from Twitter interactions through sentiment analysis. The insights gained from this study could be useful for public health officials and policymakers to develop effective communication strategies and interventions that address the concerns of vaccine-hesitant individuals and promote vaccine acceptance. English Language posts between July 2022 and November 2022, were extracted with the help of Twitter application program interface (API).

System and method for personalised recommendation of music therapy and impact analysis based on holistic health condition
Organization: Sarvatra Technologies
Role: Team member
The proposed system aims to assist users in identifying the underlying causes of illness and offers musical and non-musical treatment suggestions. It includes features to store detailed patient information, such as personal data, medical history, and current medications. Additionally, the system tracks individual progress and monitors the impact of the recommended music therapy.
Leveraging a machine learning model and natural language processing algorithms, the system provides personalized solutions for patients. The model is trained based on the principles of the seven chakras, or energy points in the human body, and incorporates the therapeutic characteristics of Indian classical music.

Patents & Copyrights

- System and method to forecast solar energy production and recommend energy allocation for an electronic device - *(Patent Published 2020)*
- A System for Recommending a Relevant Query using a Statistical Method - *(Patent Granted 2020)*
- A system and method for enabling gesture-based communication for differently abled individuals - *(Patent Granted 2020)*
- System and method for image-based ingredient retrieval and recommending consumables to users based on freshness index - *(Patent Published 2022)*
- An article on a system and method to forecast solar energy production and recommending energy allocation from smart homes - *(Copyright 2021)*

Awards & Recognitions
- 4th Rank in Pune University, ME Computer Engineering *(2006)*
- Best research paper award at IEEE International Conference on Computing, Analytics and Security Trends (CAST), held at College of Engineering, Pune *(2016)*
- Data Mining, NPTEL Elite Certificate *(2018)*
- Discrete Mathematics, NPTEL Elite Certificate *(2018)*
- Text Retrieval and Search engines, Coursera Certificate *(2020)*
- Natural language processing with TensorFlow, Coursera Certificate *(2020)*
- Deep learning and neural networks, Coursera Certificate *(2020)*