Dr. Soujanya Poria

https://sporia.info *sporia@ntu.edu.sg* *soujanya.poria@gmail.com*

Highlights

- 66 publications: 1 book, 20 journal papers, 2 book chapters, 43 conference papers
- Highly Cited Papers (in 1% most cited in Computer Science in year): 3
- Area chair of conferences: Sentiment analysis track, NAACL 2019
- Guest Editor of journals: CIM
- Reviewer for 11 journals with impact factor from 1.0 to 6.3
- PC member of conferences: EMNLP, AAAI (Senior PC), IJCAI, NAACL, ACMMM, etc.
- Emerald Citation Award
- Keynote speaker at CICLing 2018
- Conference papers: ACL, EMNLP, NAACL, AAAI, ICDM, COLING, WWW, etc.
- Journal papers: CIM, KBS, NEUNET, NEUCOMP IEEE IS, etc.
- Co-organizer of workshops in ACL, ICDM
- Total amount of grants as (co-)PI: US$ 1,839,272
- Within top 15 cited researchers in AI related areas i.e., sentiment analysis and multimodal interaction on Google scholar
- Presidential Postdoctoral Fellowship Award, NTU (12 awardees out of 600 applicants from different disciplines)
- Adjunct Faculty at IIITD, India

Education

2014 – 2017 **University of Stirling, Stirling, Scotland, UK**
Ph.D. in Computer Science and Mathematics
*T*hesis: Novel symbolic and machine-learning approaches for text-based and multimodal sentiment analysis

2009 – 2013 **Jadavpur University, Kolkata, India**
Bachelor of Engineering (B.E.) in Computer Science and Engineering
*T*hesis: Emotion Recognition in Music

Present and Past Positions

Sept 2018 –

Presidential Postdoctoral Fellow
School of Computer Science and Engineering (SCSE), NTU, Singapore.
Duties: *PI of the Multimodal Personalized Affective Dialogue System project*

May 2018 – Sept 2018

Research Scientist II
A*STAR Artificial Intelligence Programme (A*AI), A*STAR, Singapore
Duties: *Co-PI of the multimodal dialogue agent project. Leading research in NLP and multimodal sentiment analysis, advising students, researchers*

Feb 2017 – April 2018

Research Scientist
Temasek Lab, Nanyang Techological University, Singapore
Duties: *Leading the design and development of complex NLP algorithms, ontology creation in Singlish language, concept extraction and mapping in the ontology, developing state-of-the-art sentiment and emotion detection tools for Singapore local language*

Honorific Positions

Oct 2018 –

Adjunct Scientist
A*STAR Artificial Intelligence Programme (A*AI), A*STAR, Singapore
Duties: *PI of the Commonsense-based Question Answering project*

Aug 2018 –

Adjunct Faculty
Indraprastha Institute of Information Technology, Delhi, India

DUTIES: *Collaboration with the faculties, Co-PI of the projects, Co-guiding students, teaching courses NLP courses*

IMPACTS

DEMOS	Developed several text and multimedia demos each of which got worldwide attention and all together have been accessed by over 1 million users. Please visit this link - http://sporia.info/demo.html
PUBLICATIONS	Three publications are listed as **Web of Science highly cited papers**.

TEACHING AND SUPERVISION EXPERIENCE

COURSES	Teaching assistant for Information Retrieval Course (CZ4034).
(CO-)SUPERVISION	Qian Chen, SCSE, NTU Navonil Majumder, CIC, IPN

KEYNOTE AND INVITED TALKS

JUNE 2018	Invited talk at Ministry of Health and Transmission (MOHT), Singapore
MARCH 2018	Keynote speaker at CICLing 2018, Hanoi, Vietnam
FEBRUARY 2018	Invited talk at department of Computer Science, IIT Patna, India

RECOGNITION AND ACHIEVEMENTS

OCT 2018	**Area Chair** of sentiment analysis at NAACL 2019
MAY 2018	**Senior PC Member** at AAAI 2019
NOV 2016	**Invited speaker** at Deep Learning Finance Summit, Singapore.
FEB 2016	***Research Fellowship Award***, *Brain Science Foundation, USA*
APR 2015	***Honorary Member*** *of the NDS lab, Oxford University*
MAY 2014	***First place*** *award for the best performing system for semantic parsing at the SemWebEval Concept-Level Sentiment Analysis Challenge at ESWC 2014*
AUG 2014	***Invited paper***, *SocialNLP at COLING 2014, Dublin, Ireland*
FEB 2014	***Research Fellowship***, *Behavioral Media Networks, USA*
JAN 2013	***Honorary Member*** *of the Brain Science Foundation, MA, USA*

AWARDS

JUNE 2018	**Presidential Postdoctoral Fellowship, NTU, Singapore** (600 applicants, 12 total fellowships)
MAY 2017	**Emerald Citations of Excellence** (tinyurl.com/2017citationsofexcellence)
FEB 2014	***IMPACT International Research Scholarship Award***, *University of Stirling*
DEC 2013	***Tata Consultancy Best Undergraduate Software Project Award: gold plated silver medal***, *Jadavpur University*
NOV 2012	***Best student paper***, *MICAI 2012, Mexico*

BIBLIOMETRICS

- One of the most productive authors in sentiment analysis research from 2000 to 2015 (tinyurl.com/kwmboyy)
- One of the most prolific and impactful authors in sentiment analysis from 2003 to 2016 (tinyurl.com/y8yj7974)

News Coverage

Jun 2018	**News coverage on Kdnuggets** for our paper titled "A Deeper Look into Sarcastic Tweets Using Deep Convolutional Neural Networks" – https://www.kdnuggets.com/2018/06/detecting-sarcasm-deep-convolutional-neural-networks.html
Sept 2017	**News coverage** for our paper titled "Deep Learning-Based Document Modeling for Personality Detection from Text" – https://www.datanami.com/2017/09/21/deep-learning-reveals-new-insights-people/

Technical Skills

- **Github:** https://github.com/soujanyaporia
- **Major contribution:** https://github.com/SenticNet
- **Deep learning proficiency:** Pytorch, Keras, Tensorflow
- **Programming experience:** Python, Java, C/C++ (Prior Exp), LaTeX
- **Packages:** Numpy, Scikit-learn, NLTK, OpenCV

Reviewer of Journals

- Knowledge and Information Systems (**Impact Factor: 2.24**)
- IEEE Transactions on Neural Networks and Learning Systems (**Impact Factor: 6.1**)
- Expert Systems with Applications (**Impact Factor: 3.7**)
- Knowledge Based Systems (**Impact Factor: 4.3**)
- Natural Language Engineering (**Impact Factor: 1.0**)
- IEEE Intelligent Systems (**Impact Factor: 2.3**)
- IEEE Computational Intelligence Magazine (**Impact Factor: 6.3**)
- IEEE Transaction on Affective Computing (**Impact Factor: 3.1**)
- Information Processing & Management (**Impact Factor: 3.4**)
- Cognitive Computation (**Impact Factor: 3.4**)
- Artificial Intelligence Review (**Impact Factor: 3.8**)
- Many others for e.g., SciTechnol, International Journal of Computational Linguistics and Applications, Research in Computing Science, Polibits, Computación y Sistemas

Area Chair of Conferences

- Sentiment analysis track, NAACL 2019

Program Committee Member of Conferences

- AAAI 2019 (**Senior PC member**)
- EMNLP 2017, 2018
- COLING 2018
- IJCAI 2017
- IJCNLP 2017
- ACM MM 2017, 2018
- Many others for e.g.,ICMI 2017 and 2018, ICCI*CC 2018, MCPR 2017 and 2018, CICLing 2017 and 2018, FLAIRS 2015, 2016, MICAI 2016

Editorial and Professional Activities

- **Co-guest editor** of special issue of IEEE Computational Intelligence Magazine on Computational Intelligence for Affective Computing and Sentiment Analysis (CIACSA).
- **Co-guest editor** for the (Springer) Cognitive Computation journal (Impact Factor: 3.44) Special Issue on "Multimodal natural language processing for Cybersecurity applications", 2018-19.
- **Co-chair** of Advancing Artificial Intelligence Understanding of Human Multimodal Language workshop in conjunction with ACL 2018.
- **Co-chair** of MR^2AMC workshop in conjunction with ICMR 2018.
- **Organized** SENTIRE workshop in conjunction with ICDM 2017.

Grants

June 2018 – June 2020	NTU Presidential Postdoctoral Research Grant. Grant amount $300,000. **Project title:** Multimodal personalized affective dialogue systems. Role: PI
August 2018 – August 2021	Funded by A*STAR. Grant amount US$1,466,490. **Project title:** Collab AI. Role: Co-PI
May 2018 – May 2020	Adobe-e Research. Grant amount US$80,000. **Project title:** Multimodal Emotion Recognition in Dialogues. Role: PI

Collaborators

- MultiComp Lab, CMU, USA
- Affective Computing Group, University of Michigan, USA
- Multimedia Research Lab, NUS, Singapore
- Adobe Research Lab, Bangalore, India
- NDS Lab, Oxford University, UK
- NLP Lab, CIC, IPN, Mexico
- NLP Lab, IITB, Mumbai, India

Publications

Google Scholar	Citations: 3053, H-index: 32, Publications: 64
Scopus	Citations: 1285, H-index: 21, Publications: 40

Journal Papers

1. S., Poria, N., Majumder, D., Hazarika, E., Cambria, A., Hussain and A., Gelbukh. Multimodal Sentiment Analysis: Addressing Key Issues and Setting up Baselines. **Cognitive Computation** (2018).
2. R., Sukthanker, S., Poria, E., Cambria. and R., Thirunavukarasu, 2018. Anaphora and Coreference Resolution: A Review. **Submitted to Artificial Intelligence Review** (2018).
3. Majumder N, Hazarika D, Gelbukh A, Cambria E, Poria S. Multimodal Sentiment Analysis using Hierarchical Fusion with Context Modeling. **Knowledge Based Systems**. (2018).
4. M. Dragoni, S. Poria and E. Cambria. OntoSenticNet: A Commonsense Ontology for Sentiment Analysis. **IEEE Intelligent Systems**, 33(2) (2018)
5. Young, T., Hazarika, D., Poria, S. and Cambria, E. Recent Trends in Deep Learning Based Natural Language Processing. **IEEE Computational Intelligence Magazine** (2018).
6. Cambria, E., Poria, S., Gelbukh, A., Thelwall, M. Sentiment analysis is a big suitcase. **IEEE Intelligent Systems** 32 (6) (2017)
7. N. Majumder, S. Poria, A. Gelbukh, E. Cambria. Deep learning-based document modeling for personality detection from text. **IEEE Intelligent Systems** 32(2), pp. 74-79 (2017).
8. S. Poria, E. Cambria, R. Bajpai and A. Hussain. A review of affective computing: From unimodal analysis to multimodal fusion. In: **Information Fusion** (2017).
9. S. Poria, H. Peng, E. Cambria, A. Hussain, N. Howard. Ensemble Application of Convolutional Neural Networks and Multiple Kernel Learning for Multimodal Sentiment Analysis **Neurocomputing** (2016).
10. Poria, S., Cambria, E., Howard, N., Huang, G.B., Hussain, A. Fusing audio, visual and textual clues for sentiment analysis from multimodal content. **Neurocomputing** 174, 50-59 (2016).
11. Dashtipour, K., Poria, S., Hussain, A., Cambria, E., Hawalah, A.Y., Gelbukh, A. and Zhou, Q., Multilingual Sentiment Analysis: State of the Art and Independent Comparison of Techniques. **Cognitive Computation**, pp.1-15, (2016).
12. S. Poria, E. Cambria and Gelbukh, A., Aspect extraction for opinion mining with a deep convolutional neural network. **Knowledge-Based Systems**, 108, pp.42-49, (2016).
13. S. Poria, A. Hussain, E. Cambria. Fusing Audio, Visual and Textual Clues for Big Social Data Analysis. **Neurocomputing** (2016).
14. N. Ofek, S. Poria, L. Rokach, E. Cambria, A. Hussain, A. Shabtai. Unsupervised Commonsense Knowledge Enrichment for Domain-Specific Sentiment Analysis. **Springer Cognitive Computation**, (2016).
15. S. Poria, E. Cambria, F. Bisio, A. Gelbukh, A. Hussain. Sentiment Data Flow Analysis by Means of Dynamic Linguistic Patterns for Concept-Based Opinion Mining. **IEEE Computational Intelligence Magazine**, in press (2015).
16. S. Poria, E. Cambria, A. Hussain, G.-B. Huang. Towards an Intelligent Framework for Multimodal Affective Data Analysis. **Neural Networks** (2015).

17. B. Agarwal, S. Poria, E. Cambria, N. Mittal, A. Gelbukh, A. Hussain. Concept Level Sentiment Analysis using Dependency-based Semantic Parsing. **Cognitive Computation** (2015).
18. S. Poria, A. Gelbukh, E. Cambria, A. Hussain, G.-B. Huang. EmoSenticSpace: A Novel Framework for Affective Common-sense Reasoning. **Knowledge-Based Systems**, Special Issue on Big Data for Social Analysis (2014).
19. S. Poria, E. Cambria, G. Winterstein, G.-B. Huang. Sentic patterns: Dependency-based Rules for Concept-level Sentiment Analysis. **Knowledge-Based Systems**, Special Issue on Big Data for Social Analysis (2014).
20. S. Poria, A. Gelbukh, A. Hussain, D. Das, S. Bandopadhyay. Enhanced SenticNet with Affective Labels for Concept-based Opinion Mining. **IEEE Intelligent Systems**, ISSN 15411672, (2013)
21. Pakray, P., Poria, S., Bandyopadhyay, S., Gelbukh, A. Semantic textual entailment recognition using UNL. **Polibits**, 23-27 (2011)

Book

22. Poria S., Hussain A., Cambria E.. Multimodal Sentiment Analysis. **Socio-Affective Computing, Springer International Publishing**. ISBN: 978-3-319-95018-1. (2018).

Book Chapters

22. Chaturvedi, I., Poria, S., Cambria, E. Basic tasks of sentiment analysis. Book chapter. In: **Encyclopedia of Social Network Analysis and Mining**, **Springer**, ISVBN 978-1-4614-7163-9, (2017)
23. E. Cambria, M. Grassi, S. Poria, A. Hussain. Sentic Computing for Social Media Analysis, Representation, and Retrieval. Book chapter. In: **Social Media Retrieval**. Network and Communication book series, **Springer**, ISBN 978-1-4471-4555-4, (2013).

Conference Papers

24. N. Majumder, S. Poria, A. Gelbukh, Md. S. Akhtar, E. Cambria, A. Ekbal. IARM: Inter-Aspect Relation Modeling with Memory Networks in Aspect-Based Sentiment Analysis. In: **EMNLP**, Brussels (2018). [**Equal contribution**]
25. D. Hazarika, S. Poria, R. Mihalcea, E. Cambria, R. Zimmermann. ICON: Interactive Conversational Memory Network for Multimodal Emotion Detection. In: **EMNLP**, Brussels (2018). [**Equal contribution**]
26. D. Ghosal, Md S. Akhtar, D. Chauhan, S. Poria, A. Ekbal, P. Bhattacharyya. Contextual Inter-Modal Attentions for Multi-modal Sentiment Analysis. In: **EMNLP**, Brussels (2018).
27. D. Hazarika, S. Poria, S. Gorantla, E. Cambria, R. Zimmermann, R. Mihalcea. CASCADE: Contextual Sarcasm Detection in Online Discussion Forums. In: **COLING**, New Mexico (2018). [**Equal contribution**]
28. A. Zadeh, P. Liang, S. Poria, E. Cambria, LP. Morency. Human Multimodal Language in the Wild: A Novel Dataset and Interpretable Dynamic Fusion Model. In: **ACL**, Melbourne (2018).
29. D. Hazarika, S. Poria, P. Vij, G. Krishnamurthy, E. Cambria, R. Zimmermann. Modeling Inter-Aspect Dependencies for Aspect-Based Sentiment Analysis. In: **NAACL**, New Orlans (2018). [**Equal contribution**]
30. D. Hazarika, S. Poria, A. Zadeh, LP. Morency, E. Cambria, R. Zimmermann. Conversational Memory Network for Emotion Recognition in Dyadic Dialogue Videos. In: **NAACL**, New Orlans (2018).
31. A. Zadeh, S. Poria, E. Cambria, LP. Morency. Memory Fusion Network for Multi-view Sequential Learning. In: **AAAI**, New Orlans (2018).
32. A. Zadeh, S. Poria, E. Cambria, LP. Morency. Multimodal Communication Decoder Network for Human Communication Comprehension. In: **AAAI**, New Orlans (2018).
33. E. Cambria, S. Poria, D. Hazarika, K. Kwok. SenticNet 5: Discovering Conceptual Primitives for Sentiment Analysis by Means of Context Embeddings. In: **AAAI**, New Orlans (2018). [**Equal contribution**]
34. S. Poria and A. Hussain. A deep learning framework for deception detection in videos. In: **CICLing** (2018).
35. A. Zadeh, M. Chen, S. Poria, E. Cambria and L-P. Morency. Tensor Fusion Network for Multimodal Sentiment Analysis. In: **EMNLP**, Copenhagen (2017).
36. Poria, S., Cambria, E., Hazarika, D., Mazumder, N., Zadeh, A., Morenc, L.P. Multi-level Multiple Attentions for Contextual Multimodal Sentiment Analysis. In: IEEE International Conference on Data Mining series (**ICDM**) (2017)
37. S Poria, E Cambria, D Hazarika, N Mazumder, A Zadeh, L Morency. Context-dependent sentiment analysis in user-generated videos. In: **ACL**, Vancouver (2017).
38. S Poria, E Cambria, D Hazarika, N Mazumder, A Zadeh, LP Morency. Multi-level multiple attentions for context-aware multimodal sentiment analysis. In: **ICDM**, New Orleans (2017).

39. E. Cambria, D. Hazarika, S. Poria, A. Hussain and R.B.V. Subramaanyam. Benchmarking Multimodal Sentiment Analysis. In: **CICLing**, Budapest (2017).
40. S. Poria, E. Cambria, D. Hazarika, and P. Vij. A deeper look into sarcastic tweets using deep convolutional neural networks. In: **COLING**, Osaka (2016).
41. I. Chaturvedi, E. Cambria, S. Poria, R. Bajpai. Bayesian Deep Convolution Belief Networks for Subjectivity Detection. In: Data Mining Workshops (**ICDMW**), IEEE 16th International Conference (2016).
42. S. Poria, I. Chaturvedi, E. Cambria, and A. Hussain. Convolutional MKL based multimodal emotion recognition and sentiment analysis. In: **ICDM**, Barcelona (2016).
43. E. Cambria, S. Poria, R. Bajpai, and B. Schuller. SenticNet 4: A semantic resource for sentiment analysis based on conceptual primitives. In: **COLING**, Osaka (2016).
44. S. Poria, I. Chaturvedi, E. Cambria, and F. Bisio. Sentic LDA: Improving on LDA with semantic similarity for aspect-based sentiment analysis. In: **IJCNN**, Vancouver (2016).
45. S. Poria, E. Cambria, and A. Gelbukh. Deep Convolutional Neural Network Textual Features and Multiple Kernel Learning for Utterance-Level Multimodal Sentiment Analysis. **EMNLP**. Lisbon (2015).
46. E. Cambria, J. Fu, F. Bisio, and S. Poria. AffectiveSpace 2: Enabling affective intuition for concept level sentiment analysis. **AAAI**. Austin (2015).
47. P. Chikersal, S. Poria, E. Cambria. SeNTU: Sentiment Analysis of Tweets by Combining a Rule-based Classifier with Supervised Learning. In: SemEval@ **NAACL-HLT**, 647-651 (2015).
48. Cambria, E., Poria, S., Bisio, F., Bajpai, R., Chaturvedi, I. The CLSA Model: A Novel Framework for Concept-Level Sentiment Analysis. In: **CICLing** (2), 3-22 (2015).
49. P. Chikersal, S. Poria, E. Cambria, A. Gelbukh, C. E. Siong. Modelling Public Sentiment in Twitter: Using Linguistic Patterns to Enhance Supervised Learning. **CICLing 2015**, Cairo, Egypt. **Springer LNCS**.
50. Poria, S., Cambria, E., Ku, L.W., Gui, C., Gelbukh, A. A rule-based approach to aspect extraction from product reviews. In: **SocialNLP@COLING** (2014).
51. Poria, S., Ofek, N., Gelbukh, A., Hussain, A., Rokach, L. Dependency tree-based rules for concept-level aspect-based sentiment analysis. In: **Semantic Web Evaluation Challenge**, 41-47 (2014).
52. Poria, S., Agarwal, B., Gelbukh, A., Hussain, A., Howard, N. Dependency-based semantic parsing for concept-level text analysis. In: **CICLing** (2014).
53. Cambria, E., Poria, S., Gelbukh, A., Kwok, K. Sentic API: a common-sense based API for concept-level sentiment analysis. In: **Microposts workshop, WWW** (2014).
54. Poria, S., Gelbukh, A., Agarwal, B., Cambria, E., Howard, N. Sentic Demo: A hybrid concept-level aspect-based sentiment analysis toolkit. In: **ESWC** (2014).
55. Poria, S., Gelbukh, A., Agarwal, B., Cambria, E., Howard, N. Common sense knowledge based personality recognition from text. In: **MICAI**, 484-496 (2013).
56. Poria, S., Gelbukh, A., Hussain, A., Bandyopadhyay, S., Howard, N. Music genre classification: A semi-supervised approach. In: **MCPR**, 254-263 (2013).
57. Minhas, S., Poria, S., Hussain, A., Hussainey, K. A review of artificial intelligence and biologically inspired computational approaches to solving issues in narrative financial disclosure. In: **BICS**, 317-327 (2013).
58. S. Poria, A. Gelbukh, D. Das, S. Bandyopadhyay. Fuzzy Clustering for Semi-Supervised Learning—Case study: Construction of an Emotion Lexicon. **MICAI 2012**. Mexico City, Mexico, **Springer LNCS**. **Best student paper award**.
59. Poria, S., Gelbukh, A., Cambria, E., Das, D., Bandyopadhyay, S. Enriching SenticNet Polarity Scores Through Semi-Supervised Fuzzy Clustering. In: Data Mining Workshops (**ICDMW**), IEEE 12th International Conference on Data Mining (2012).
60. Poria, S., Gelbukh, A., Cambria, E., Yang, P., Hussain, A., Durrani, T. Merging SenticNet and WordNet-Affect emotion lists for sentiment analysis. In: Signal Processing (**ICSP**), IEEE 11th International Conference on 2, 1251-1255 (2012).
61. Das, D., Poria, S., Bandyopadhyay, S. A Classifier Based Approach to Emotion Lexicon Construction. In: **NLDB**, 320-326 (2012).
62. Das, D., Poria, S., Dasari, C.M., Bandyopadhyay, S. Building resources for multilingual affect analysis–a case study on hindi, bengali and telugu. In: ES^3**, LREC**, 54 (2012).
63. Poria, S., Gelbukh, A., Das, D., Bandyopadhyay, S. Fuzzy clustering for semi-supervised learning—Case study: Construction of an emotion lexicon. In: Proceedings of **MICAI** (2012).
64. Pakray, P., Neogi, S., Bhaskar, P., Poria, S., Bandyopadhyay, S., Gelbukh, A.F. A Textual Entailment System using Anaphora Resolution. In: **TAC** (2011).
65. Pakray, P., Pal, S., Poria, S., Bandyopadhyay, S., Gelbukh, A.F. JU_CSE_TAC: Textual Entailment Recognition System at TAC RTE-6. In: **TAC** (2010).
66. Pakray, P., Pal, S., Poria, S., Bandyopadhyay, S., Gelbukh, A. Smsfr: Sms-based faq retrieval system. In: Proceedings of **MICAI** (pp. 36-45). Springer, Berlin, Heidelberg.