

# Dwaipayan Roy

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Information Retrieval Lab

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## Research Area

Information Retrieval, Text Processing, Natural Language Processing

## Sub Area

- Word Embedding for Information Retrieval
- Scholarly Citation Recommendations
- Retrieval Models for Information Retrieval
- Knowledge Graph and Knowledge Base

## Publications

**Roy, D., Mitra, M. LucDeb: A Retrieval Model Debugger.** *Communicated.*

**Roy, D., Bhatia, S., Mitra, M. Selecting Discriminative Terms for Relevance Model.** *Communicated.*

**Roy, D., Bhatia, S. Analysis of Information Gap Across Different Language Editions of Wikipedia.** *Unpublished.*

*Ganguly, D., Afla, H., Roy, D. Word Embedding based Semantic Cross-Lingual Document Alignment in Comparable Corpora. 10th Annual Meeting of the Forum for Information Retrieval Evaluation (FIRE 2018), pp. 28–34.*  
<https://doi.org/10.1145/3293339.3293346>

**Roy, D., Ganguly, D., Bhatia, S., Bedathur, S., Mitra, M. Using Word Embeddings for Information Retrieval: How Collection and Term Normalization Choices Affect Performance.** *27th ACM International Conference on Information and Knowledge Management (CIKM 2018), pp. 1835–1838.*  
<https://doi.org/10.1145/3269206.3269277>

**Roy, D., Ganguly, D., Mitra, M., Jones, G. Estimating Gaussian Mixture Models in the Local Neighbourhood of Embedded Word Vectors for Query Performance Prediction.** *Information Processing & Management (Elsevier) – Volume 56, Issue 3, pp. 1026-1045.*  
<https://doi.org/10.1016/j.ipm.2018.10.009>

**Roy, D., Mitra, M., Ganguly, D. To Clean or not to Clean: Document Pre-processing and Reproducibility.** *ACM Journal of Data and Information Quality – Volume 10 Issue 4, Article No. 18, pp. 18:1–18:25.*  
<https://doi.org/10.1145/3242180>

**Roy, D. An Improved Test Collection and Baselines for Bibliographic Citation Recommendation.** *26th ACM International Conference on Information and Knowledge Management (CIKM 2017)*, pp. 2271–2274.  
<https://doi.org/10.1145/3132847.3133085>

**Roy, D. Word Embedding based Approaches for Information Retrieval.** *Seventh BCS-IRSG Symposium on Future Directions in Information Access (FDIA 2017)*, pp. 1–4.  
<https://dx.doi.org/10.14236/ewic/FDIA2017.9>

**Roy, D., Ganguly, D., Mitra, M., Jones, G. Word Embedding based Relevance Feedback using Kernel Density Estimation.** *25th ACM International Conference on Information and Knowledge Management (CIKM 2016)*, pp. 1281–1290.  
<https://doi.org/10.1145/2983323.2983750>

**Roy, D., Ganguly, D., Mitra, M., Jones, G. Representing Documents and Queries as Sets of Word Embedded Vectors for Information Retrieval.** *SIGIR 2016 Workshop on Neural Information Retrieval (NeuralIR – 2016)*.  
<https://www.microsoft.com/en-us/research/event/neuir2016/>

**Roy, D., Paul, D., Garain, U., Mitra, M. Using Word Embeddings for Automatic Query Expansion.** *SIGIR 2016 Workshop on Neural Information Retrieval (NeuralIR – 2016)*.  
<https://www.microsoft.com/en-us/research/event/neuir2016/>

**Roy, D., Ray, K., Mitra, M. From a Scholarly Big Dataset to a Test Collection for Bibliographic Citation Recommendation.** *Scholarly Big Data: AI Perspectives, Challenges, and Ideas - AAAI'16 Workshop*, pp. 705–710.  
<https://www.aaai.org/ocs/index.php/WS/AAAIW16/paper/view/12635>

Ganguly, D., **Roy, D., Mitra, M., Jones, G. Word Embedding based Generalized Language Model for Information Retrieval.** *35th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2015)*, pp. 795–798.  
<https://doi.org/10.1145/2766462.2767780>

Bandyopadhyay, A., **Roy, D., Mitra, M., Saha, S. Named Entity Recognition from Tweets.** *16th LWA workshops: KDML, IR and FGWM (LWA 2014)*, pp. 218–225.  
<http://ceur-ws.org/Vol-1226/paper33.pdf>

**Roy, D., Bandyopadhyay, A., Mitra, M. A Simple Context Dependent Suggestion System.** *21st Text Retrieval Conference (TREC 2013)*.  
<https://trec.nist.gov/trec/pubs/trec22/papers/isi-context.pdf>

*Sing, J.K., Roy, D., Basu, D.K., Nasipuri, M. Generalized Diagonal 2D FLDA for Efficient Face Recognition.* *International Conference on Communications, Devices and Intelligent Systems (CODIS-2012)*, pp. 636–639.  
<http://ieeexplore.ieee.org/abstract/document/6422283/> (Master's thesis)

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## Public Presentations

- **Improving Information Retrieval Performance using Word Embedding: Invited talk at TBML 2018:** Presented at:
  - Theoretical Basis of Machine Learning - 2018 (TBML - 2018), International Centre for Theoretical Sciences, Bengaluru
- **Word Embedding and Information Retrieval:** Presented at:
  - Indian Statistical Institute, Kolkata
- **A Survey of Information Retrieval Approaches with Embedded Word Vectors: Tutorial at ICON 2017:** Presented at:
  - 14<sup>th</sup> International Conference on Natural Language Processing (ICON - 2017), Jadavpur University, Kolkata
- **Introduction to HDFS and MapReduce:** Presented at:
  - Ramakrishna Mission Vivekananda University
  - Indian Statistical Institute, CVPR Departmental Colloquium
  - Department of Computer Science, Jadavpur University

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## Reviewing

- Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)
- Information Processing & Management (Elsevier Journal)
- ACM Conference on Research and Development in Information Retrieval (SIGIR)
- International Conference on Natural Language Processing (ICON)
- Forum for Information Retrieval Evaluation (FIRE)
- International Conference on Emerging Applications of Information Technology (EAIT)
- International Conference on Computational Linguistics (COLING)

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## Academic Visits

- 2018 August - October **IBM Research, Delhi, India:** Visiting Researcher
- 2016 October - November **Dublin City University, Dublin Ireland:** Visiting Researcher
- 2015 May - June **Dublin City University, Dublin Ireland:** Visiting Scholar

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## Academic Achievements

- **Received ACM SIGIR Travel Grant** to attend CIKM 2018 in Turin, Italy.
- **Received Microsoft Research Travel Grant** to attend CIKM 2017 in Singapore.
- **Received Google Research Travel Grant** to attend CIKM 2016 in Indianapolis, USA.
- **Received Microsoft Research Travel Grant** to attend CIKM 2016 in Indianapolis, USA.
- **Received ACM SIGIR Travel Grant** to attend CIKM 2016 in Indianapolis, USA.
- **Received ISI Travel Grant** to attend AAI 2016 in Arizona, US.
- **Received ACM SIGIR Travel Grant** to attend SIGIR 2015 in Santiago, Chile.
- **Receiving ISI Senior Research Fellowship** from 2014 till date

- **Received ISI Junior Research Fellowship** from 2012 to 2014
- Qualified All India Research Fellowship examination organized by Indian Statistical Institute.
- Qualified in West Bengal Joint Entrance for Computer Applications, ranked among top 10.
- Stood first in B.Sc. Computer Applications in Calcutta University, 2006-2009 batch.

## Teaching Experiences

- **Course Instructor - Data Structures II** - Fall 2016, 2015, 2014 - Ramakrishna Mission Vidyamandira, Belurmath
- **Teaching Assistant - Programming and Data Structures Lab** - Fall 2014 - Indian Statistical Institute, Kolkata

## Technical Skills Expertise

**Languages** Expert: C, Java, Script Familiar: C++, Python

**Platforms** Expert: Unix Familiar: Windows

**Tools** Expert: Lucene Familiar: Elastic Search

## Education

2019 **PhD in Computer Science (expected by March, 2019)**, *Indian Statistical Institute, Kolkata.*

2014–2019 **Senior Research Fellow**, *Indian Statistical Institute, Kolkata.*

2012–2014 **Junior Research Fellow**, *Indian Statistical Institute, Kolkata.*

2009–2012 **Master of Computer Applications**, *Jadavpur University.*

2006–2009 **B.Sc.(Major) in Computer Applications**, *University of Calcutta.*

2006 **Higher Secondary(10+2)**, *W.B.C.H.S.E.*

2004 **Secondary(10)**, *W.B.B.S.E.*

## References

- **Dr. Mandar Mitra** Associate Professor, Indian Statistical Institute, Kolkata, India.  
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- **Prof. Gareth Jones** Professor, Dublin City University, Dublin, Ireland.  
email: *gareth.jones@dcu.ie*
- **Dr. Debasis Ganguly** Researcher, IBM Research, Dublin, Ireland.  
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