


Dr. Oswald C.

Assistant Professor

Dept. of Computer Science and Engineering

National Institute of Technology (NIT) Tiruchirappalli, Tamilnadu. India.

(An Institute of National Importance, Ministry of Education, Government of India)

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Research Interests - Data Mining, Machine Learning, Information Retrieval, Natural Language Processing (Computational Linguistics) and Human-Computer Interaction

- Text Mining, Classification of Text/Image Data, Social Media Data Analytics
- Fake News Detection, Multimodal Hate Speech detection, Computational Science for Social Good
- Text/Image Compression, Graph Compression
- Ontology and Knowledge Graph, Question-Answering for Epics (English, Tamil)

Education

Ph.D., Computer Science and Engineering, **Indian Institute of Information Technology, Design and Manufacturing Kancheepuram**

On: Efficient Algorithms for Text and Image Compression based on Knowledge Engineering

Advisor: B. Sivaselvan - July 2013 - Nov 2018

M.Tech. (Master of Technology) in Software Engineering, **Karunya University** [8.7/10, University I Rank]

On: Hybrid Particle Swarm Optimization for University Course Timetabling Problem

July 2011 - May 2013

B.E. (Bachelor of Engineering) in Computer Science and Engineering, Sona College of Technology, **Anna University** [8.4/10, Best Co-curricular Student]; June 2005 – May 2009

Professional Experience

Assistant Professor, Computer Science and Engineering, **NIT Tiruchy**.

Sep 2022 – till now

Assistant Professor, Computer Science and Engineering, **IIIT Kottayam**.

July – Sep 2022

Institute Postdoctoral Fellow, Computer Science and Engineering, **Indian Institute of Technology Kanpur**

Mentor: Prof. Arnab Bhattacharya - Feb 2021 – July 2022

Assistant Professor–Senior, School of Computer Science and Engineering, **VIT Chennai**

June 2019 – February 2021

Assistant Professor, Department of Computer Science and Engineering, **SRM IST**, Chennai

June 2018 – May 2019

Intern, **IBM India Systems & Software Lab**, Bangalore

In: IBM AIX – Functional Verification Testing (FVT) - Dec 2012 – July 2013

Programmer Analyst, **Cognizant Technology Solutions**, Chennai

Dec 2009 – May 2011

Publication in Journals

1. C. Oswald, Sona Elza Simon and Arnab Bhattacharya. "SpotSpam: Intention Analysis Driven SMS Spam Detection using BERT Embeddings", *ACM Transactions on the Web*. <https://dl.acm.org/doi/10.1145/3538491> (IF: 2.04)
2. C. Oswald & Sivaselvan, B., (2018). Text and Image Compression based on Data Mining Perspective. *Data Science Journal*. 17, p.12. DOI: <http://doi.org/10.5334/dsj-2018-012>. (IF: 0.3)
3. C. Oswald and B. Sivaselvan. "Smart Multimedia Compressor – Intelligent Algorithms for Text and Image Compression." *The Computer Journal*, November 2021. <https://doi.org/10.1093/comjnl/bxab173> (IF: 1.07)
4. C. Oswald, Haritha, E., Akash Raja, A. and Sivaselvan, B., 2021. An efficient and novel data clustering and run length encoding approach to image compression. *The Wiley - Concurrency and Computation: Practice and Experience*, 33(10), p.e6185. <https://onlinelibrary.wiley.com/doi/10.1002/cpe.6185> (IF: 1.4)
5. C. Oswald and B. Sivaselvan. 2017. An optimal text compression algorithm based on Frequent Pattern Mining. *Springer Journal of Ambient Intelligence and Humanized Computing*. 9, p.1-20. <https://doi.org/10.1007/s12652-017-0540-2>. (IF: 4.5)

Manuscripts in Review

1. C. Oswald, Allen P. Alex and Arnab Bhattacharya. "DEFENSE: Detection of COVID-19 Fake News in Social Media Posts using Feature Engineering and Sentence Embedding", *The Expert Systems Journal*.
2. C. Oswald, Suyash Chaudhary and Arnab Bhattacharya. "Discovering Depression in Reddit: Addressing the Under-Represented Users in Social Media", *The Expert Systems Journal*.
3. Tejaswi Kumar, Navansh Goel and C. Oswald. "A Novel Multilayered Randomness Approach to Text CAPTCHA: Design, System and Usability evaluation", *The Journal of Supercomputing - Springer*.

Conference Proceedings

1. C. Oswald, Gadi Jaya Satwika and Arnab Bhattacharya. "Prediction of CardioVascular Disease (CVD) using Ensemble Learning Algorithms", 9th ACM India Joint International Conference on Data Science & Management of Data (*CODS-COMAD*), 2022.
2. C. Oswald, Shivam Baranwal, S.M. Satya Sree Narayanan and Arnab Bhattacharya. "Divorce Astrologer: Machine Learning based Divorce Prediction of Married Couples" accepted at *INDICON'22*.
3. Tejaswi Kumar, Navansh Goel, Siddhant Roy, C. Oswald "Usability evaluation of novel text CAPTCHA schemes based on colors and shapes", In 4th International Conference on Innovative Computing and Communication (*ICICC*) 2021. (**Best Paper Award**)
4. Moolam Hima Swetha, B. Sivaselvan, C. Oswald, "Closed Frequent Itemset Mining approach to Image Security Enhancement", In IEEE International Conference on Computer, Communication and Signal Processing (*ICCCSP*), pp. 1-6. IEEE, 2018.
5. Sudheer S, Sivaselvan B, C. Oswald, "Emergent User Design Framework for E- Payment Mobile Application", In 2018 IEEE International Conference on Computer, Communication and Signal Processing (*ICCCSP*), pp. 1-6. IEEE, 2018.
6. Kuldeep Gunta, B. Sivaselvan, C. Oswald, "Gamification Paradigm for WebApps Design Framework", In IEEE International Conference on Computer, Communication and Signal Processing (*ICCCSP*), pp. 1-6. IEEE, 2018.
7. Biswas, Subham, Nikhil Chennu, Harsha Valveti, C. Oswald, and B. Sivaselvan. "Lossy Image Compression using Frequent Pattern Mining based Huffman Encoding." In 2017 14th IEEE India Council International Conference (*INDICON*), pp. 1-6. IEEE, 2017.
8. Neeraj, S., C. Oswald, and B. Sivaselvan. "A Novel Gamification Approach to Recommendation Based Mobile Applications." In 2017 Ninth International Conference on Advanced Computing (*ICoAC*), pp. 157-164. IEEE, 2017.

9. Krishna Chaurasia, Sowmya Jain, B. Sivaselvan, C. Oswald, "Automatic Ranking of CAPTCHAs based on Usability Measures", In Annual IEEE India Conference (*INDICON*), pp. 1-6. IEEE, 2017.
10. Kadimisetty, Avinash, C. Oswald, B. Sivaselvan, and Kadimisetty Alekhya. "Lossy image compression— A frequent sequence mining perspective employing efficient clustering." In 2016 13th IEEE Annual India Conference (*INDICON*), pp. 1-6. IEEE, 2016.
11. Kadimisetty, Avinash, C. Oswald, and B. Sivaselvan. "Frequent Pattern Mining Approach to Image Compression." In 2016 22nd Annual International Conference on Advanced Computing and Communication (*ADCOM*), pp. 27-32. IEEE, 2016.
12. C. Oswald, Anirban I Ghosh, and B Sivaselvan. Knowledge engineering perspective of text compression. In 2015 Annual IEEE India Conference (*INDICON*). IEEE, 1–6. 2015.
13. Oswald, C., Anand Devadurai, C., "Novel hybrid PSO algorithms with search optimization strategies for a university course timetabling problem." In 2013 Fifth International Conference on Advanced Computing (ICoAC), pp. 77-85. IEEE, 2013. (**Best Paper Award**)

Indian Patents (Published)

1. Oswald C, M. Mohamad Fasil Ansaary, P. Raghava Ratna, *An Integrated System and Method for a Touchless, Paperless Election Voting for Government and Private mode*, February 05, 2021. File No. **202141003735**.
2. Oswald C, Jayapragash R, Trishit Chakraborty, Tanishq Gupta, Aditya Agrawal, *SPoTA: Smart Prevention of Train Accidents*, August 28, 2020. File No. **202041035035**.
3. Balasundaram A, Manas Ranjan Prusty, Inayathullah M A, Oswald C, *Smart Attendance Marking System (SAMS) using Computer Vision*, July 03, 2020. File No. **202041025660**.

Book Chapters

1. Oswald C., Ajith Kumar I., Avinash J., Sivaselvan B. (2017) A Graph-Based Frequent Sequence Mining Approach to Text Compression. In: Mining Intelligence and Knowledge Exploration. *MIKE 2017*. Lecture Notes in Computer Science, vol 10682. Springer, Cham. ISBN: **978-3-319-71928-3**.
2. Tummala K., Oswald C., Sivaselvan B. (2018) A Frequent and Rare Itemset Mining Approach to Transaction Clustering. In: Data Science Analytics and Applications. *DaSAA 2017*. Communications in Computer and Information Science, vol 804. Springer, Singapore. ISBN: **978-981-10-8603-8**.
3. Kataria M., Oswald C., Sivaselvan B. (2019) A Novel Rare Itemset Mining Algorithm Based on Recursive Elimination. In: Software Engineering. Advances in Intelligent Systems and Computing, vol 731. Springer, Singapore. ISBN: **978-981-10-8848-3**.
4. Oswald C., Akshay Vyas V., Arun Kumar K., Vijay Sri L., Sivaselvan B. (2018) Hierarchical Clustering Approach to Text Compression. In: Progress in Intelligent Computing Techniques: Theory, Practice, and Applications. Advances in Intelligent Systems and Computing, vol 518. Springer, Singapore. ISBN: **978-981-10-3373-5**.
5. Karthik M., Oswald C., Sivaselvan B. (2018) Frequent Sequence Mining Approach to Video Compression. In: Computational Intelligence, Cyber Security and Computational Models. Models and Techniques for Intelligent Systems and Automation. *ICC3 2017*. Communications in Computer and Information Science, vol 844. Springer, Singapore. ISBN: **978-981-13-0716-4**.
6. Avula S., Oswald C., Sivaselvan B. (2018) Frequent Pattern Mining Guided Tabu Search. In: Data Science Analytics and Applications. *DaSAA 2017*. Communications in Computer and Information Science, vol 804. Springer, Singapore. ISBN: **978-981-10-8603-8**.

- Oswald C., Ghosh A.I., Sivaselvan B. (2015) An Efficient Text Compression Algorithm - Data Mining Perspective. In: Mining Intelligence and Knowledge Exploration. *MIKE 2015*. Lecture Notes in Computer Science, vol 9468. Springer, Cham. ISBN: **978-3-319-26832-3**.

Projects Hosted

Algorithm Visualizer - <https://algorithmvisualizer.github.io/AlgoVis/>

Vaibhave S, Shyam Sasidharan Nair, Shyam Sundaram S, Akash A, Oswald C
Department of CSE, VIT Chennai.

Hungarian Method Visualizer - <https://hungvisual.github.io/HungVis/>

Shubh Todi, Oswald C

Department of CSE, VIT Chennai.

Awards and Recognitions

Research Excellence Award, VIT Chennai – 2019

Elite Alumni Award, Sona College of Technology – 2017

SPOT Light Award, Cognizant Tech. – 2011

Outstanding Overall Co-curricular Performance in Undergrad – 2009

Best NSS Volunteer Award – 2009

Courses Taught

Data Structures and Algorithms – Fall'19 and Fall'20

Problem Solving and Programming in Python – Fall'20, Winter'19 and Fall'19

Software Quality and Reliability – Winter'20

Artificial Intelligence – Fall'18, Fall'22

Software Reliability – Fall'18 and Winter'18

Professional Service

Journal Reviewer: Data Science Journal, Elsevier Methods, IEEE Journal of Biomedical and Health Informatics

Conference Reviewer : ICITSD'21, CICT'20, COCONET'20, ICIoT'19, ICONDM'16, INDICON'21

Professional Bodies : Member of the Board of Studies, Sona College of Technology

Doctoral Committee Member (Anna University)

NASSCOM Certified Student Trainer on “Associate Analytics”

Invited Events

- *Types of Itemsets and their algorithms*, Workshop DAMI' 2018 at IIITDM Kancheepuram.
- CODS'15, CODS'16, VLDB'16, CODS'17 and CODS'18 through travel grants from ACM SIGKDD.
- *An Introduction to Supervised, Unsupervised and Reinforcement Learning* at NIT Trichy, Guru Nanak College and SRM University Chennai.
- *Career Opportunities for budding Engineering Graduates*, at Sona College of Technology, Kongunadu College of Engineering.
- *Data Science: Challenges and Opportunities* at Solamalai College of Engineering, Madurai.
- Chief Guest, National level Technical Symposium Threads'13 at Sona College of Technology.

Administrative Responsibilities

- NAAC Committee Coordinator (VIT Chennai and SRMIST)
- Linux Club Coordinator (VIT Chennai)
- Proctee for 25 students

Events Organized

- One Day National Level Workshop on *Pixels on Point* at VIT Chennai on Feb 22, 2020.
- Industrial Guest Lectures on *Data Structures and Algorithms in LinkedIn, Problem Solving techniques in Google*, VIT Chennai.

Referees

Prof. S. Mary Saira Bhanu
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Technology (IIT) Kanpur
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