


Dr. Oswald C.
Assistant Professor
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(Ministry of Education, Government of India)
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Research Interests - Machine Learning, Deep Learning, Data Mining, Natural Language Processing and Human Computer Interaction

- Text Mining, Social Media Analytics, Computational Science for Social Good
- Ontology and Knowledge Graphs, Question-Answering (English and Indian Languages)
- Text/Image Compression, Graph Compression

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 Heuristic Algorithms 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 Tiruchirappalli**. Sep 2022 – present
- 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, Computer Science and Engineering, **VIT Chennai**. June 2019 – Feb 2021
- Assistant Professor, 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

Funded Projects

Ongoing

Title: MindScribe: Giving Voice to Silent Minds, **Amount** – 10 Lakhs

Funding Agency: IIT Indore DRISHTI CPS Foundation under the NM-ICPS Scheme

PI: Dr. Chandresh Kumar Maurya, Associate Professor, Dept. of CSE, IIT Indore.

Co-PIs: **Dr. C. Oswald**, NIT Tiruchirappalli & Prof. Amit Agrawal, Head, Neurosurgery, AIIMS Bhopal

Completed

Title: Exploring 'Smart' Pedagogy through the End to End Development of a Technology-Enhanced Learning (TEL) system, **Amount** – 13.43 Lakhs.

Funding Agency: ICSSR (India)-JSPS (Japan) Joint Research Programme in the field of Social Sciences

PI: Dr. Rachel Philip, Assistant Professor, School of Liberal Arts, IIT Jodhpur.

Co-PIs: Prof. Takafumi Matsumaru, Waseda University, Dr. Riby Abraham Boby, IIT Jodhpur, Dr. Sivanathan Sampath, IIT Delhi, **Dr. C. Oswald**, NIT Tiruchirappalli and Dr. Rajlaxmi Chouhan, IIT Jodhpur

Student Guidance (the number in the bracket is the year of graduation)

PhD: Abhijith Balan – July 2023 – present

Anju (QIP Scheme) – Jan 2025 – present

Sambasiva Rao Chindam (Part Time) – Jan 2025 – present

M.Tech: Yash Gogoria, Sachin Kumar Gupt (2024), Abhisek Raj (2025), Rakesh Kumar Rakesh (2026), Anurag Kadam – 2027 ongoing

B.Tech: Aditya G, Vijay G, Aadit Krishnaa R(2026), Srikanth V(2025), Amarjit, Dharanish Rahul S, Mithilesh K (2024)

Publication in Journals

1. Mitra, S., Elza Simon, S., Oswald, C., Bhattacharya, A. and Pal, A., 2026. CGS: Configurable Graph Summarization with Bounded Neighborhood Loss and Query Support. *ACM Transactions on Knowledge Discovery from Data*. <https://dl.acm.org/doi/10.1145/3786788>
2. Oswald, C., Simon, S.E. and Bhattacharya, A., 2022. Spotsam: Intention analysis-driven sms spam detection using bert embeddings. *ACM Transactions on the Web (TWEB)*, 16(3), pp.1-27. <https://dl.acm.org/doi/10.1145/3538491>
3. Oswald, C. and Sivaselvan, B., 2018. Text and image compression based on data mining perspective. *Data Science Journal*, 17, pp.12-12. DOI: <http://doi.org/10.5334/dsj-2018-012>.
4. Oswald, C. and Sivaselvan, B., 2023. Smart Multimedia Compressor—Intelligent Algorithms for Text and Image Compression. *The Computer Journal*, 66(2), pp.463-478. <https://doi.org/10.1093/comjnl/bxab173>
5. 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>
6. Oswald, C. and Sivaselvan, B., 2018. An optimal text compression algorithm based on frequent pattern mining. *Journal of Ambient Intelligence and Humanized Computing*, 9, pp.803-822. <https://doi.org/10.1007/s12652-017-0540-2>.
7. Navansh Goel, Tejaswi Kumar and C. Oswald. 2023. A Novel and Efficient Multilayered Approach to CAPTCHA: Design, Performance and Usability Evaluation. *International Journal of Computer Information Systems and Industrial Management Applications*, 15, p.438-459. https://www.mirlabs.org/ijcisim/regular_papers_2023/Paper39.pdf

Manuscripts in Review

1. Lokkamithran M, Mubeena, Joshua Mahadevan. "Offensive Text Detection in Code-mixed Dravidian Languages Towards Marginalized Groups and Women", *Annals of Data Science*.
2. 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*.
3. C. Oswald, Suyash Chaudhary and Arnab Bhattacharya. "Discovering Depression in Reddit: Addressing the Under-Represented Users in Social Media", *Annals of Data Science*.

Conference Proceedings

1. Vasana ML, R. Vinish Krishna, Naveen Ragav, Nikhil Gudapati, Kalyan Sudarsan, Rachel Philip, and Oswald C, "Bridging Textbook Content and Interactive Visualizations: AI-Driven Multilingual Resources for SMART Pedagogy," in Proceedings of the 2026 International Conference on Smart Communication and Sustainable Technologies (ICSCST), 2026.
2. Abhijith Balan, Aranganathan S, and Oswald C, "A Study on Named Entity Recognition in Tamil Language using Multilingual Transformers and Sequence Models," in Proceedings of the 2026 International Conference on Smart Communication and Sustainable Technologies (ICSCST), 2026.
3. Abhijith Balan, Rohan Jose, and Oswald C, "Attention-Based Fusion for Malayalam Hate Speech Detection Using MuRIL and XLM-R," in Proceedings of the 2026 International Conference on Smart Communication and Sustainable Technologies (ICSCST), 2026.
4. Abhinav P M, Ojasva Saxena, Oswald C, Parameswari Krishnamurthy, 2025. The Riddle of Reflection: Evaluating Reasoning and Self-Awareness in Multilingual LLMs using Indian Riddles. *arXiv preprint arXiv:2511.00960*.
5. R S Mughil Srinivasan, Kesavan T, Abhijith Balan, Abhinav P M, Parameswari Krishnamurthy, Oswald C, VIDAI: VIDukathAI Interpretation Through Analysis of In-Context Reasoning in Tamil using LLMs. In 39th

- Pacific Asia Conference on Language, Information and Computation (PACLIC), 05 – 07, Dec, 2025, Vietnam.
6. Mithilesh, K., Madhumalararungeethayan, A., Balan, A., Oswald, C. and Terdalkar, H., 2024, December. Aganittiyam: Learning Tamil Grammar through Knowledge Graph based Templated Question Answering. In *Proceedings of the 38th Pacific Asia Conference on Language, Information and Computation* (pp. 838-852).
 7. Abhijith Balan, Karthik Chittoor and Oswald C, Indian Language Summarization and Factual Error Detection using Pretrained Sequence-to-Sequence Models and Large Language Models. In Forum for Information Retrieval Evaluation (FIRE), IIT Gandhinagar, Dec, 2024. (Presented)
 8. Yash Gogoriya, Oswald C, and Abhijith Balan. 2024. Landscape Painter: Mimicking Human Like Art Using Generative Adversarial Networks. In *Proceedings of the 21st International Conference on Natural Language Processing (ICON)*, pages 602–606, AU-KBC Research Centre, Chennai, India. NLP Association of India (NLP AI).
 9. K. Tulip Raaj, C. Oswald, “FoCID: Forecasting Cryptocurrency Investment Decision using Deep Learning and Ensemble Models. *2023-ORSI & 2023-ICBAI*, 18 – 20 Dec, 2023, IISC. Bangalore. (Presented/**Best Paper Award**)
 10. P.M. Isai Visaahan, N.V. Karthik Balaji, C. Oswald. Data-Driven Predictive Maintenance: Machine Learning based Prediction of Machine Failures. *2023-ORSI & 2023-ICBAI*, 18 – 20 Dec, 2023, IISC. Bangalore. (Presented).
 11. Oswald, Jaya Sathwika, G. and Bhattacharya, A., 2022, January. Prediction of cardiovascular disease (CVD) using ensemble learning algorithms. In *5th Joint International Conference on Data Science & Management of Data (9th ACM IKDD CODS and 27th COMAD)* (pp. 292-293).
 12. Oswald, C., Baranwal, S., Narayanan, S.S.S. and Bhattacharya, A., 2022, November. Divorce Astrologer: Machine Learning based Divorce Prediction of Married Couples. In *2022 IEEE 19th India Council International Conference (INDICON)* (pp. 1-6). IEEE.
 13. Kumar, T., Goel, N., Roy, S. and Oswald, C., 2022. Usability Evaluation of Novel Text CAPTCHA Schemes Based on Colors and Shapes. In *International Conference on Innovative Computing and Communications: Proceedings of ICICC 2021, Volume 2* (pp. 355-363). Springer Singapore. (**Best Paper Award**)
 14. Swetha, M.H., Sivaselvan, B. and Oswald, C., 2018, February. Closed Frequent Itemset Mining Approach to Image Security Enhancement. In *2018 International Conference on Computer, Communication, and Signal Processing (ICCCSP)* (pp. 1-6). IEEE.
 15. Surendran, S., Sivaselvan, B. and Oswald, C., 2018, February. Emergent User Design Framework for E Payment Mobile Application. In *2018 International Conference on Computer, Communication, and Signal Processing (ICCCSP)* (pp. 1-6). IEEE.
 16. Gunta, K., Sivaselvan, B. and Oswald, C., 2018, February. Gamification paradigm for WebApps design framework. In *2018 International Conference on Computer, Communication, and Signal Processing (ICCCSP)* (pp. 1-5). IEEE.
 17. Biswas, S., Chennu, N., Valveti, H., Oswald, C. and Sivaselvan, B., 2017, December. Lossy Image Compression using Frequent Pattern Mining based Huffman Encoding. In *2017 14th IEEE India Council International Conference (INDICON)* (pp. 1-6). IEEE.
 18. Neeraj, S., Oswald, C. and Sivaselvan, B., 2017, December. A novel gamification approach to recommendation based mobile applications. In *2017 Ninth international conference on advanced computing (ICoAC)* (pp. 157-164). IEEE.
 19. Chaurasia, K., Jain, S., Sivaselvan, B. and Oswald, C., 2017, December. Automatic Ranking of CAPTCHAs based on Usability Measures. In *2017 14th IEEE India Council International Conference (INDICON)* (pp. 1-6). IEEE.
 20. Kadimisetty, A., Oswald, C., Sivaselvan, B. and Alekhya, K., 2016, December. Lossy image compression—A frequent sequence mining perspective employing efficient clustering. In *2016 IEEE Annual India Conference (INDICON)* (pp. 1-6). IEEE.
 21. Kadimisetty, A., Oswald, C. and Sivaselvan, B., 2016, September. Frequent Pattern Mining Approach to Image Compression. In *2016 22nd Annual International Conference on Advanced Computing and Communication (ADCOM)* (pp. 27-32). IEEE.
 22. Oswald, C., Ghosh, A.I. and Sivaselvan, B., 2015, December. Knowledge engineering perspective of text compression. In *2015 Annual IEEE India Conference (INDICON)* (pp. 1-6). IEEE.
 23. Oswald, C., 2013, December. 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. (**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**.
7. 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**.

Teaching

Data Analytics: Jan'26

Data Structures: July'25, July'26

Machine Learning (CSPE65): Jan'25, Database Management Systems (CSMI14): July'24

Big Data Analytics (CSOE11): July'23, Jan'22, Artificial Intelligence (CSMI17): July'23, 22, Jan'18

Software Engineering (CSPE73): Jan'24, Jan'23, Comprehensive Viva (CSIR81): Jan'23

Data Structures and Algorithms: Jan'26, Jan'25, Jan'24, June'19, June'20

Problem Solving and Programming in Python: June'20, Jan'19, June'19

Software Quality and Reliability: Jan'20, Software Reliability: June'18, Jan'18

Administrative Responsibilities

Dept. NPTEL Coordinator – Jan'26 - present

Institute International Collegiate Programming Contest (ICPC) Coach – July'24 onwards

Dept. BIS Coordinator - Jan'24 – present

Member of Dept. Project Evaluation Committee for M.Tech. students: July'23 – June'2024

Faculty Advisor: Akkara Club: August'22 - present
Member of the Institute Social Media Team: October'22 - present
CSE Dept. NBA Preparation Committee: October'22
Institute Anti Ragging Committee: October'22, August'23, August'24
AICTE Margdarshan Scheme Coordinator: September'23 - present
Mentor for 35 students at NITT (August'23 - present), Proctee for 25 students at VIT Chennai

Projects Hosted

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

Vaibhave S, Shyam Sasidharan Nair, Shyam Sundaram S, Akash A, Oswald C, Dept. 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
Outstanding Overall Co-Curricular Performance in Undergrad – 2009
Best NSS Volunteer Award – 2009

Professional Service

Journal Reviewer: National Academy Science Letters, 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, CLIP'23

Professional Bodies : Member, Board of Studies, Sona College of Technology
Doctoral Committee Member (Anna University, VIT, KTU)
NASSCOM Certified Student Trainer on “Associate Analytics”

Events Organized

- AICTE sponsored ATAL online FDP on “Generative AI and Ethical AI: Techniques and Applications at NITT.
- ACM sponsored “ROCS: Research Opportunities on Computer Science”, 05 April, 2024.
- One Week Workshop on “Machine Learning: Techniques and Trends”, 26 – 30 June, 2023 at NIT Tiruchirappalli.
- Industrial Guest Lectures on *Data Structures and Algorithms in LinkedIn*, *Problem Solving techniques in Google*, *Big Data Analytics at Zoho* (at NITT and VIT-C)

Events/Talks Participated

- Talk on *From Words to Worlds: Generative AI for Social Good applications* at the Winter School on Interdisciplinary Pathways in Computational Social Sciences: Economics, Sociology and Policy, IIT Jodhpur, February, 2025.
- *12th Advanced Summer School on NLP (IASNLP)* at IIIT Hyderabad, July 2024.
- Talk on *A Tale of Two Cities: Machine Learning with Digital Humanities* at IIT Jodhpur.
- Talk on *Why Machine Learning is a buzzword?, An Informal Introduction to Reinforcement Learning* at MLDS'23, NITT.
- Talk on *Introduction to scikit-learn* at ICSSP'23, NITT.
- Talk on *Types of Itemsets and their algorithms*, Workshop DAMI' 2018 at IIITD&M Kancheepuram.
- CODS'15, CODS'16, VLDB'16, CODS'17 and CODS'18 through travel grants from ACM SIGKDD.

Last updated on 19/06/2026