

# ADEEP HANDE

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## Education

### IIIT TIRUCHIRAPPALLI

Aug. 2018 – May 2022 (Expected)

Bachelor of Technology in Computer Science, CGPA = 8.1/10.0

Tiruchirappalli, TN

Featured Coursework: Deep Learning, Natural Language Processing, Cloud Computing, Software Engineering, Software Project & Management.

## RESEARCH EXPERIENCE

### Insight SFI Research Centre for Data Analytics

July 2020 – Present

Research Intern

Galway, Ireland

- Developed a Multi-task Learning framework for Sentiment Analysis and Offensive Language Identification in Dravidian Languages.
- Constructed Code-Mixed Datasets scraped from YouTube for Kannada-English language.
- Devised a semi-supervised method for offensive language identification by generating Pseudo Labels for the transliterated datasets.

### Raaga Products Pvt Ltd

May 2021 – July 2021

Research Intern

Bengaluru, KA

- Worked on the project /emphAnomaly Detection using transformer-based GAN.
- Proposed a novel method to detect anomalies in Diabetic Retinopathic images using adversarial learning.
- worked on the task of detecting anomalies on synthetically generated images of the Aptos Dataset.
- Collaborated with team members using version control systems such as Git to organize modifications and assign tasks.

### Raaga Products Pvt Ltd

July 2020 – Oct 2020

Machine Learning Intern

Bengaluru, KA

- Worked on the project /emphA semi-supervised approach for detecting Diabetic Retinopathy.
- Applied various Machine Learning algorithms such as Alexnet, GAN, VGG-16, CNN, for classifying Diabetic Retinopathy in the eye.
- Generated labels for another dataset by using semi-supervised approaches to tackle the lack of datasets

## PUBLICATIONS<sup>1</sup>

[12] Offensive Language Identification in Low-resourced Code-mixed Dravidian languages using Pseudo-labeling

Under review in the Computer Speech and Language Journal

[Preprint]

[11] Hope Speech detection in under-resourced Kannada language

Under review in the Advances in Computational Intelligence Journal

[Preprint]

[10] Do Images really do the Talking? Analysing the significance of Images in Tamil Troll meme classification

Under review in the Advances in Computational Intelligence Journal

[Preprint]

[9] Benchmarking Multi-Task Learning for Sentiment Analysis and Offensive Language Identification in Under-resourced Dravidian Languages

Under review in the Soft Computing Journal

[Preprint]

[8] KanCMD: Kannada CodeMixed Dataset for Sentiment Analysis and Offensive Language Detection

[Paper]

[7] Attentive Fine-tuning of Transformers for Translation of low-resourced languages

[Paper]

[6] Leveraging Pretrained Language Models for Multilingual Protest Detection

[Paper]

[5] Domain Identification of Scientific Articles using Transfer Learning and Ensembles

[Paper]

[4] Tamil Troll Meme Classification: You need to Pay more Attention

[Paper]

[3] Transfer Learning for Offensive Language Detection in Dravidian Languages

[Paper]

[2] Hope Speech Detection: There is always hope in Transformers

[Paper]

[1] Evaluating Pretrained Transformer-based Models for COVID-19 Fake News Detection

[Paper]

<sup>1</sup>Google Scholar

## Technical Skills

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**Languages:** Python, Java, C, Julia, JavaScript, SQL

**Developer Tools:** Pycharm, VS Code, AWS, Google Cloud Platform, Android Studio, L<sup>A</sup>T<sub>E</sub>X

**Technologies/Frameworks:** Linux, GitHub, GitLab

## PROJECTS

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**English to Irish & Marathi Translation System** [[code](#)] | *Python, AWS Sagemaker* **May 2021 - July 2021**

- Worked on developing several approaches for Neural Machine Translation such as Zero-shot learning, back-translation with T5, mBART, and M2M100.
- Fine-tuned IndicTrans, the largest language model available at the time, on Samanantar Dataset.
- The model was fine-tuned on the training data a parallel Bible corpus for Marathi. The parallel bible parallel corpus from a previous task (MultiIndicMT task in WAT 2020) was used.

**Multi-task Learning for Auxiliary tasks** [[code](#)] | *Python, Pycharm, low-resourced languages* **Oct 2020 - Jun 2021**

- Developed Multi-task learning frameworks to address the lack of annotated data for low-resourced languages
- Experimented with several loss functions and benchmarked the models on the datasets of three low-resourced languages.
- Experimental results indicate that Multi-task learning is effective on very closely related tasks, and the loss functions assigned to each tasks.

**Dual Channel Language Model** [[code](#)] | *Python, Text Classification* **Dec 2020 - May 2021**

- Constructed a corpus consisting of 7K comments for sequence classification.
- Used Google Translate API to translate all the code-mixed sentences into English.
- Computed the Weighted sum of the outputs of the two datasets to improve the performance of the models.

## ACADEMIC AWARDS AND ACHIEVEMENTS

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- Recipient of the Udacity AWS Machine Learning Scholarship 2021
- Accepted into the 11<sup>th</sup> Lisbon Machine Learning Summer School of 2021, at Instituto Superior Técnico (IST), Portugal (acceptance rate: 5% for Undergrads)
- Summer Internship offer for the School of AI and Data Science, IIT Jodhpur.
- 1<sup>st</sup> rank in the shared on MT systems for COVID-related texts at the Technologies for MT of Low Resource Languages, LoResMT at MT Summit 2021 (out of 150 submissions).
- Accepted into the FAccT AI Winter School 2020 at IIT Kharagpur (acceptance rate: 10%)
- 2<sup>nd</sup> rank in the shared task on domain identification of scientific articles, SDPRA at PAKDD 2021.

## POSITIONS OF RESPONSIBILITY

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**Training and Placement Cell** **Spring 2020 – Present**

*Coordinator*

*IIIT Trichy*

- Assisted in conducted successful placement drives across all departments of the university.
- Managed a team of 5 members and ran biweekly meetings to oversee progress in essential parts of contacting recruiters
- Conducted several pre-placement drives and mock exams to acquaint the students for placements.

**Aikyam** **Spring 2020 – Present**

*Co-editor*

*IIIT Trichy*

- Co-editor of Aikyam, a bimonthly magazine of IIIT Trichy that aims to promote the cultural diversity of India.
- Jointly led a team of 15 members to work towards collecting and reviewing contents received in various languages.

**Organizer & Reviewer** **Jan 2021 – Present**

*Multiple Venues*

*IIIT Trichy*

- Reviewed 2 manuscripts for Springer Nature's SN Computer Science Journal
- Part of the program committee for two workshops of [DravidianLangTech](#) and [LT-EDI](#) at the European Chapter of Computational Linguists 2021.
- Jointly Organizing a shared task on Sentiment Analysis in Dravidian languages ([DravidianCodeMix](#)) at FIRE 2021.
- Organizing committee member for *Choose to Challenge - Together We Can*, a 5-day national workshop at IIIT Tiruchirappalli.

**DeepLearning.AI** **spring 2020 –Spring 2021**

*Ambassador*

*Tiruchirappalli, TN*

- Pie & AI Ambassador for DeepLearning.AI, representing the area of Tiruchirappalli, TN, India.
- Conducted several AI meetups to increase the awareness among Deep Learning and AI in Tiruchirappalli, India