

# SENTHIL KUMAR

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- A ML Engineer
  - specialized in building production-grade NLP applications utilizing ML/DL and Generative AI
  - capable of co-developing ML applications by following robust coding practices
  - who has extensively used state-of-the-art Transfer learning models
- An aspiring software engineer who strives
  - to co-develop clean, modular, tested software applications
  - to apply software engineering principles in every datascience/ML effort
- Total Exp: 13 years; Data Science Exp: 9/13 years

## WORK EXPERIENCE

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### Senior ML Engineer, Toyota Connected India

Jul 2022 – Present

- Build data pipelines and NLP applications in AWS cloud to aid Connected Car customers by following Agile Scrum methodology
- Published 2 articles in TCIN medium and presented a seminar on Serverless Python App in PyCon2023

### Lead Data Scientist, Ford, Analytics Team

May 2018 – Jun 2022

- A hands-on **data science developer** who co-developed with NLP experts from the US team
- I contributed in the end-to-end ML application development
  - from data acquisition, cleaning, labeling and preprocessing,
  - to model development, deployment and maintenance

### Assistant Manager, LatentView Analytics (LV)

Apr 2014 – Apr 2018

- Roles I played: **Data Scientist, Project Delivery Manager**
- Utilized Python, SQL, ML and NLP Skills to uncover answers from social media text data
- Responsible for project scoping and accountable for the delivery of Social Media Analytics projects of 8+ members
- *"....Sincere, driven, articulate and utterly committed ... "* - Skip-level Reporting Manager at LV

### Lead Analyst, Beroe Inc

Jul 2010 – Dec 2013

- Produce Market Research reports on how to procure indirect spend categories
  - *" ... well organized, innovative ... and always ready to go the extra mile "* - Client Engagement Manager
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## Career Progression & Performance Awards

- **Ford:** Senior Data Scientist to Lead Data Scientist Promotion
    - In Nov'2019, after 1.5 years of joining Ford
  - **LatentView:** Senior Analyst to Assistant Manager Promotion
    - In Oct'16, after 2.5 years of joining LatentView
  - **Beroe:** Promoted twice in my first company
    - During my 3.5 year stint in Beroe
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- **Toyota:**
    - 1/ Employee of the month. Won in Sep'23, 3 months after joining the company
    - 2/ Hackathon Team Winner. Part of team that won TCIN Hackcelerate in Mar'23
  - **Ford:** Asia-Pacific Recognition Award
    - Won in May '19 for successful spearheading of a project
  - **LatentView:** Encore Award
    - Won for company-wide best performance for the Jul-Sep 2016 quarter
  - **Beroe:** Knowledge Contributor Awards (Won twice for company-wide best performance in 2013)
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## EDUCATION

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- Bachelors in Engg - Electronics - 8.6 CGPA
    - Madras Institute of Technology, 2006 - 2010
  - 12th Grade - 95% | 10th Grade - 92%
    - State Topper in Physical Science paper, 2006 TN Engineering Entrance Exam
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# TECHNICAL UPSKILLING

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## Online Courses

- [Generative AI with LLMs](#), Coursera-Deeplearning.ai, Nov'23
  - [DeepLearning Specialization\(5 courses\)](#), Coursera-Deeplearning.ai, Dec'18 - May'19
  - [ML Fundamentals for Structured Data \(2 courses\)](#), Kaggle Learn, Jan-Feb'22
  - [Applied Text Mining \(2 courses\)](#), Coursera-MichiganUniv, Jan'18
  - [GCP Big Data & ML Fundamentals](#), Coursera-Google, Apr'21
  - [SQL \(GCP BigQuery\) Fundamentals](#), Kaggle Learn, Feb'22
  - [Probability and Statistics Fundamentals \(2 courses\)](#), LinkedIn Learning, Dec'21
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## Skills

- **Languages**
  - Python, SQL(basics), Markdown, Linux Shell
- **Python Libraries** (extensive usage)
  - Pandas, SpaCy, Re (Regular Expressions), Transformers, Sklearn, PyTorch
- **Tools**
  - Git, WSL, Docker, Kubernetes, Conda/Poetry/Pipenv/Pyenv/Venv (Python env management tools), PyCharm/VS Code, AWS Serverless Cloud, AWS CLI, OpenAI, ChatGPT, Prompt Engineering
- **Python Libraries** (working knowledge)
  - PySpark, FastAPI (REST API), Streamlit (UI), Altair (viz)

## KEY PROJECTS

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### BERT Fine-tuned Aspect-based Sentiment Analysis Pipeline

[More Details](#)

- Built a reusable Sequence Classification ML Pipeline which converts customer comments into trackable Aspect and Sentiment pairs
  - The ML Pipeline used BERT-fine-tuning and it helped yielding 85%+ F1 score with minimal annotated data for more than 25+ classes
  - Incorporated easy to use human-in-the-loop annotation and model monitoring scripts
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### Personally Identifiable Information (PII) Detection using Named Entity Recognition (NER)

[More Details](#)

- Anonymized PII in text data by building a NER system using **RoBERTa Fine-tuned Transformer model**
  - Bootstrapped the training data using Spacy rules (thus easing the annotation process by not starting labeling from scratch)
  - Deployed an asynchronous inference REST API (using FastAPI and K8s) that can be plugged into multiple applications
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### NLP Semantic Search Pipeline

[More Details](#)

- Created a “digital thread” by connecting two automotive domain specific data sources
  - The data sources contain technician comments about issues before the launch of a vehicle
  - The digital thread was established by assigning NLP-based semantically matching common part descriptions in comments in both datasources
  - Purpose: Predict the prominent issues about to occur in a downstream data source by reviewing the issues much earlier in the launch cycle
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### Reusable Text Data Clustering Pipeline

[More Details](#)

- Built reusable Text Clustering pipeline with simpler Python APIs for non-NLP analysts
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