DEVI GANESAN

WELLINGTON-BASED NZ RESIDENT

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CAREER HIGHLIGHTS

- **AI Engineering Consultant** **Experience: 2 years**
  - Leveraged OpenAI LLM for performing NER on medical studies pulled from clinicaltrials.gov using developer APIs.
  - Designed an ETL pipeline for periodic polling of a website API using AWS EventBridge Scheduler, Lambda functions, S3 bucket and MongoDB
  - Designed and created a Python-based HS Code Tagger using Word2Vec embeddings and eBay API for efficient product and HS code description matching
  - Engineered a Python NER module for identifying names, emails, and dates from call transcriptions using Stanford NLP and NLTK libraries, with an evaluation module for performance quantification

    Tools & Technologies used:

    NLP: NLTK, Gensim, spaCy, StanfordNLP, HuggingFace, Langchain

    Data Science & Machine Learning: Matplotlib, Pandas, Sklearn, Gensim, NumPy
- **Research Assistant** **Experience: 5 years**
  - Conceptualized and implemented a cross-domain application of a machine learning algorithm; Published research paper ``Protein Segmentation using Natural Language Processing."
  - Mentored graduate research projects, with one of them to an international publication; ``Integrating Lexical Knowledge in Word Embeddings using Sprinkling and Retrofitting"

    Tools & Technologies used: NLTK, Gensim, spaCy, StanfordNLP, SciPy
- **Business Intelligence** **Experience: 4 years**
  - Delivered actionable insights via regular information reports; automated report generation for efficient manpower usage
  - Revamped the department website enhancing user experience and user interface

    Tools & Technologies used

  Data Analysis & Business Intelligence: Power Query, Excel Dashboards, ABAP Reports

  Web Development: HTML, Javascript, AJAX, CSS

TECHNICAL SKILLS

Programming Languages	Python
Database Query Languages	SQL, PostgreSQL
Machine Learning & Deep Learning Libraries	Scikit-Learn, Gensim, Tensorflow, PyTorch, Langchain, OpenAI
Natural Language Processing (NLP)	NLTK, SpaCy, HuggingFace
Data Visualization	Excel Dashboards, Matplotlib, Plotly, PowerBI
Version Control	Git, Bitbucket
Web Development and frameworks	HTML, Javascript, AJAX, Django, Streamlit
Data mining and Web scraping	Beautiful Soup, Scrapy

AWARDS AND RECOGNITIONS

- **AWS Deep Racer Women's League India** 2021 Achieved a top 100 ranking out of 17,000 participants, demonstrating expertise in reinforcement learning and applied machine learning in a competitive, cloud-based real-world scenario.
- **Microsoft Research India Travel Grant** in 2018, 2019
- **Best Student Video Award at the ICCBR Video Competition**, 2018, Sweden

EDUCATION

Indian Institute of Technology Madras Chennai, India. 2016 - 2021	Ph.D. in Computer Science and Engineering (focused on Artificial Intelligence)
Indian Institute of Technology Madras Chennai, India. 2014 – 2016	Master of Computer Science and Engineering
Madras Institute of Technology Chennai, India. 2006-2010	Bachelor of Computer Science and Engineering

WORK HISTORY

AI Consultant **May 2024 - Present**

I3DigitalHealth, India (Remote, Contract)

I am currently working as an independent AI consultant for i3DigitalHealth, an Indian start-up that provides data-driven solutions for challenging problems in healthcare sector.

Contributions:

- Designed an ETL pipeline for periodic polling of a website API using AWS EventBridge Scheduler, Lambda functions, S3 bucket and MongoDB. Implementation in progress.
- Leveraged OpenAPI's LLM for performing NER on medical studies pulled from clinicaltrials.gov using developer APIs.

AI Engineering Consultant **June 2021 - May 2023**

Artificial Intelligence Innovation Hub, Accenture, Bangalore, India

After completing my Doctorate in Computer Science and Engineering, I joined as an AI Engineering Consultant at the AI Innovation Hub of Accenture. I was responsible for conceptualising and implementing AI solutions for various clients covering end-to-end processes from data preparation to programming to deployment.

Responsibilities

- Leveraging statistical and data analytic tools such as Scikit-learn, NumPy, Pandas to analyze complex datasets and derive actionable insights; training, testing and deploying machine learning models.
- Contributing to a development environment utilising CI/CD practice, collaborating with team members, and following coding standards to ensure seamless integration and delivery processes

Contributions

- Implemented a Named Entity Recognition (NER) module in Python focusing on the automatic recognition of names, email ids, and dates from the text transcriptions of voice calls recorded between an agent and her customers. Utilised Stanford NLP and NLTK libraries for text processing and developed an evaluation module for quantifying the automated NER performance.
- Improved an existing automatic financial reconciliation system through a novel algorithm. Matched the ledger records with bank statements using a genetic algorithm-based matching module in Python, achieving approximately 60% reduction in running time on unit test cases.

- Developed a HS Code Tagger in Python, leveraging the eBay API to collect relevant product descriptions and estimating the textual similarities between the product descriptions and HS code description using Word2Vec embeddings. Facilitated swifter manual verification by bringing all relevant information to a single screen.
- Conducted competitive benchmarking by developing a web scraper using Beautiful Soup for collecting the job hourly rates posted on multiple job portals. This information was used to provide a competitive advantage to the client while deciding their pay rates.
- Fostered team-building during the COVID-19 pandemic by hosting and coordinating online meetups.

Teaching and Research Assistant **June 2017 – May 2021**

Indian Institute of Technology Madras, Chennai, India

During my Master and Doctorate programs at the Indian Institute of Technology Madras, I served as a Teaching and Research Assistant for courses such as Natural Language Processing (NLP), Memory Based Reasoning in AI and Fundamentals of Programming.

- Delivered lectures for graduate students on Introduction to Python, building a Simple Search Engine, Parallel Coordinates for visualizing higher dimensions and data-knowledge trade-offs in Case-Based Reasoning.
- Designed student assignments and mentored students on projects for the NLP course
- Winner of the STAR TA award (multiple times) for exceptional and devoted teaching assistance

Research Intern - Natural Language Processing **Sep 2015 – Mar 2016**

SkedoolIt Inc. USA (Remote)

During my Masters at the Indian Institute of Technology Madras, I got the opportunity of doing a remote internship with SkedoolIt Inc., which is a US based start-up. I worked on developing a smart assistant called 'Alex' to facilitate scheduling of meeting automatically based on email conversations.

- Implemented selected features of the Named Entity Recognition module of the smart scheduling assistant 'Alex' in Java using StanfordNLP library.
- We achieved 12% and 17% increase in the precision and recall scores of the Stanford NER tagger respectively by adding custom rules

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Planning and Systems Engineer **Jun 2010 - Jul 2014**

Bharat Heavy Electricals Limited (BHEL), Trichy, India

After completing Bachelor's in Computer Science and Engineering, I joined as a full-time systems engineer at BHEL, which is the largest government-owned power equipment manufacturer in India with over 30,000 employees.

- Facilitated top management in informed decision making by providing periodic assessment and information reports in SAP, utilising ABAP programs.
    - This involved collecting data from multiple sources, handling missing data, and handling misleading outliers.
    - Automated the manual process using Microsoft VBA and ABAP programs
- Revamped the department website by employing HTML, CSS, JavaScript, and AJAX, enhancing user experience and modernising its interface
- Realised a 22% reduction in delivery posting time by identifying and resolving root causes of system errors within the SAP MM module, enhancing operational efficiency.
- Facilitated effective communication and continuous feedback between end-users and system developers, bridging the gap and ensuring alignment with project objectives.
- Led upskilling sessions on C and C++ coding for employees and their dependents at BHEL, enhancing their programming proficiency and technical capabilities.
- Created a comprehensive process flowchart to improve system documentation, enhancing clarity and accessibility of information.