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Satish Palaniappan

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Experience

Software Engineer | **Microsoft Corporation** | **Jun 2020 – Present**
InApp Help, Customer Success Engineering | *Manager: Scott Kuykendall (Principal Software Eng. Manager)*

- Architecting and developing intelligent solutions to improve all M365 apps' InApp help search, discovery, and experiences.
- Responsible for developing or testing computer software applications, systems or services; evaluating requirements, estimating development costs, designing and implementing the software, reviewing the design and implementation, improving the development process, performing unit testing, communicating status, analyzing risks and compromises, integrating software into larger system, or diagnosing and resolving issues. I have been assigned to various projects that utilize the required technical skills to deploy successful product releases, from early product definition and scoping to detailed specification, implementation, and roll-out phases.
- *Specialized in:* Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Algorithm Design, and Cloud Development.

SDE Intern | **Amazon (AWS)** | **Jun 2019 – Aug 2019**
HPC Performance Benchmarking Framework | *Manager: Linda Hedges (Principal SDM)*

- Architected and built an extensible end-to-end automated framework that creates HPC clusters globally across all 50 AWS availability zones; installs and runs various performance benchmarks; and retrieves, parses, stores, searches and visualizes the metrics over time, via an interactive dashboard. This uncovered significant performance degrades in specific AZs.
- Helped set up the Infosphere team in the High-Performance Computing organization, being the first-ever member.

Software Engineer | **Qube Cinema Technologies** | **Jun 2016 – May 2018**
iCount & Dispatcher | *Manager: Rajesh Ramachandran (CTO)*

- Designed and developed a 99% accurate, deep-learned, scalable viewer-demographics mining engine, using convolutional neural networks to extract the count, age, & gender of the movie watchers from low-light images of a theatre's auditorium.
- Architected and built a real-time resource allocation and optimization algorithm for making logistical business decisions and maximizing profits intelligently, based on minimum cost flow (transportation) problem and pruned search trees.
- Developed a bot for automatically syncing theatre databases across the globe, into one unified format, using Word2Vec.

Research Assistant | **Institute of Mathematical Sciences** | **Dec 2015 - Dec 2017**
Optical Character Recognition on Indus Scripts | *Advisor: Prof. Ronojoy Adhikari*

- Architected and implemented a deep-learned *optical character recognition engine* that can recognize the 417+ Indus script symbols from images of ancient Harappan civilization artifacts. The symbol classification module has an accuracy of 92%.
- Published this work as a research paper titled "*Deep Learning the Indus Script*". News articles covering this work were published in *The Verge*, *The Hindu*, *Times of India*, and *SBS Radio - Australia*.

Data Scientist - Intern | **Serendio Inc.** | **May 2015 - Jul 2015**
DisKoveror - Text Analytics | *Manager: Ravi Condamoor (CEO)*

- Implemented a *universal multi-domain sentiment scorer* for text, that supports 36 domains and has an accuracy of 90%.
- Engineered a *topic modeling algorithm* using hierarchical k-means and semantic word clusters, with an accuracy of 80%.
- Designed an *internet-slang text parser* that can normalize 6 different artifacts ranging from acronyms to emoticons.

Research Intern | **Carnegie Mellon University** | **Nov 2014 - Dec 2014**
Text-based Emotion Recognition System | *Advisors: Prof. Bhiksha Raj & Prof. Rita Singh*

- Built a classification model for assigning emotion labels to text data, using histograms built over Word2Vec word/phrase clusters. This model can classify the 7 basic emotions with an accuracy of 90.9%.

Education

Masters in Computer Science | **Johns Hopkins University** | **May 2020**

- *Teaching Assistant* (Spring '20) for Machine Learning: Deep Learning, under *Prof. Silvio Amir*.
- *Research Assistant* (Spring '19), *Prof. Joshua Vogelstein*, Research area: *Stacked Convolutional Random Forests*.
- *Teaching Assistant* (Fall '18) for Object-Oriented Software Engineering, under *Prof. Scott Smith*.
- **Coursework:** Artificial Intelligence, Machine Learning, Deep Learning, Parallel Programming, Information Retrieval and Web Agents, Neuro Data Design (CGPA: 3.88/4.0).

Bachelors in Computer Science | **Anna University** | **May 2016**

- **Thesis:** *Automated Scenario Description for Images* - built an image captioning algorithm using deep learning capable of describing Pokémon battle scenes with natural language descriptions.
- **Scores:** CGPA: 8.56/10, GRE: 324/340 (Quant: 169/170), TOEFL: 116/120.

Skills

- **Languages:** Python, Java, R, C, C++
- **Libraries:** PyTorch, Caffe, Keras, Scikit-Learn, Gensim, NLTK, NumPy, SciPy, OpenCV, Matplotlib, Pandas, Flask, Dash
- **Others:** AWS, Docker, DynamoDB, Elasticsearch, Cython, Git, Unix, DevOps

Projects

- ***mgcpy (hyppo)***: A comprehensive high-dimensional independence and k-sample testing Python package. The code/package has been merged into *SciPy* and the *research paper* has been submitted to the Journal of Machine Learning Research (JMLR) and the Journal of Statistical Software.
- ***Distributed Panorama Construction from High-Resolution UAV Images Using Public Compute Nodes***, *Indian Space Research Organization (ISRO), Smart India Hackathon 2018*. Won the 1st place in this nation-wide hackathon. It was covered by *The Hindu* & *Times of India*.
- ***COVID-19 Search Engine***: Localized and Personalized Search Engine for keeping track of the dynamic and huge inflow of information during the COVID-19 global pandemic. Our search engine crawls, aggregates, indexes and searches/retrieves information from local news sources in Baltimore and reports back relevant and personalized results to the user.
- **Pokémon VQA**: Solves the Visual Question Answering problem in the *Pokémon* domain with an accuracy of 65.9%.
- ***Universally Compatible and Accessible, Software Controlled, Expandable Home Automation Systems***: This research project was funded by the Innovation Center at the *Sri Sivasubramaniya Nadar College of Engineering* (SSN CE, affiliated to Anna University). It was also published as a paper titled: "*Home Automation Systems - A Study*" in IJCA (cited 45 times). Indian Patent Ref. ID: 5729/CHE/2015.

Leadership & Achievements

- **Merit Scholarship** (Full), for *Excellence in Academics*, SSN College of Engineering, Anna University.
- **Microsoft Research** certified, for proficiency in "*Design and Analysis of Algorithms*".
- **Government of India**, *Industry Mentor*, for 2 consecutive years at the *Smart India Hackathon* (world's largest).
- **Association for Computing Machinery (ACM)**, *Chairman* (2015-16), *Treasurer & Tech Lead* (2014-15), SSN CE.
- **Outstanding Student Organizer Award** (2016), *ACM Student Chapter*, SSN CE.