

Experience

Software Engineer <i>KnowCo, Customer Success Engineering</i>	Microsoft <i>Manager: Scott Kuykendall (Principal Software Eng. Manager)</i>	Jun 2020 – Present
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- Starting work as a software engineer under the KnowCo, Marvel team in the Customer Success Engineering (CSE) org and Experiences + Devices (E+D) engineering group. My role involves building intelligent solutions to improve the Office in-app help experiences.

SDE Intern <i>HPC Performance Benchmarking Framework</i>	Amazon (AWS) <i>Manager: Linda Hedges (Principal SDM)</i>	Jun 2019 – Aug 2019
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- 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 degradations in specific AZs.
- Helped set up the Infosphere team in the High-Performance Computing organization, being the first-ever member.

Software Engineer <i>iCount & Dispatcher</i>	Qube Cinema Technologies <i>Manager: Rajesh Ramachandran (CTO)</i>	Jun 2016 – May 2018
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- 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 <i>Optical Character Recognition on Indus Scripts</i>	Institute of Mathematical Sciences <i>Advisor: Prof. Ronojoy Adhikari</i>	Dec 2015 - Dec 2017
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- 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 <i>DisKoveror - Text Analytics</i>	Serendio Inc. <i>Manager: Ravi Condamoor (CEO)</i>	May 2015 - Jul 2015
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- 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 <i>Text-based Emotion Recognition System</i>	Carnegie Mellon University <i>Advisors: Prof. Bhiksha Raj & Prof. Rita Singh</i>	Nov 2014 - Dec 2014
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- 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 <i>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).</i>	Johns Hopkins University	May 2020
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Bachelors in Computer Science <i>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.</i>	Anna University	May 2016
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Skills

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- 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.