https://www.github.com/rajathpatel23
https://rajathpatel23.github.io

RAJAT PATEL

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EMPLOYMENT

Machine Learning Engineer **Interos Inc., Arlington, VA** **Jan 2020 - Present**

- Built an Image Search Engine with an active learning component to detect logos of partners and subsidiaries available on company webpages. Implemented a web application using Django, celery, and postgres – database with front-end written in bootstrap, jQuery, and JavaScript to build an interactive interface for the search engine
- Developed and implemented an entity linking algorithm using transformers to enhance the linking capabilities by 30% in the relational knowledge base
- Developed joint learning frameworks to extract entity and events from news article for low-resource problems
- Designed and developed feedback systems to monitor ML models' performance, detect concept drifts, and build training sets

Graduate Research Assistant **University of Maryland Baltimore County,**
(under Dr. Francis Ferraro) **Baltimore, MD** **Aug 2019 – Dec 2019**

- Developed framework for building joint learning models to learn knowledge graph embedding and semantic type information
- Evaluated the effectiveness of training knowledge graph embedding and fine grain entity types with language models
- Researched and explored different training techniques to optimize the joint learning framework on classification and language modeling tasks

Data Scientist Intern **Interos Inc., Arlington, VA** **Jun 2019 – Aug 2019**

- Built an intelligent product crawler tool that uses both unsupervised and supervised machine learning to learn the HTML structure of the webpage and identify the product names with 75% accuracy
- Created a pipeline to integrate the product crawler tool with the Interos knowledge base to enhance linking timelines by 85%

Graduate Research Assistant **University of Maryland, School of Medicine,** **May 2018 – May 2019**
(under Dr. Shiming Yang) **Baltimore, MD**

- Explored deep learning-based techniques to predict the need for massive transfusion with 1st hours and first 24 hours post-trauma
- Researched and built multi-task algorithms to study vital signs in trauma patients to predict various life-saving interventions discover to feature level relationships among them
- Performed research to study the idea of combining dimensionality reduction with the nearest neighbor approach to represent the decomposed (short time fourier transform / continuous wavelet transform) PPG signal for predicting massive transfusion
- Build PPG signal datasets to predict outcomes Uncross-match blood (UnX), massive transfusion (MT), and critical administrative threshold (CAT)

Software Engineer **Larsen & Toubro Infotech, Mumbai, India** **Jan 2015 – Jul 2017**

- Built python libraries for robotic process automation to reduce manual work effort on client projects by 80%
- Developed shell script to schedule and automated daily monitoring activities within the client's infrastructure to reduce efforts on OS & DB administration
- Developed a Proof of Concept on distributed SAP data migration technique as a collaborative effort with SAP Center of Excellence team in the IMS business unit

TECHNICAL SKILLS

Programming Languages:	Python, Go, JavaScript, Shell Scripting, SQL
Frameworks & Technologies:	TensorFlow, PyTorch, NumPy, SciPy, FastAPI, Flask, Django, AWS Sagemaker
Tools & Database:	Jupyter, Git, Visual Studio, PyCharm, Vim, MongoDB, SQLite, MySQL, Kubernetes, Docker,

EDUCATION

Baltimore, MD **University of Maryland Baltimore County** **Aug 2017 – Dec 2019**

M.S. in Computer Science

Coursework: Design & Analysis of Algorithms, Advanced operating systems, Advanced Computer Architecture, Machine Learning, Natural Language Processing, Information Retrieval, Data Science

Kolhapur, India **Shivaji University** **Aug 2010 – May 2014**

B.E. in Electronics and Telecommunication Engineering

Coursework: Data structure and Algorithms, Digital Design, Microcontroller, Image Processing, Embedded Systems

PUBLICATIONS

On the Complementary Nature of Knowledge Graph Embeddings, Fine Grain Entity Types and Language modeling
InProceedings, EMNLP Workshop on Deep Learning Inside Out, November 2020 (link)

PROJECTS

Jointly Learning Knowledge Graph Embedding, Fine Grain Entity Type and Language Models – (Master's thesis)
The deep learning framework model learned real-valued representations for structured facts from a knowledge graph in form of embeddings. The multi-task learning framework helped improved performance on downstream NLP applications

Combining Image Recognition with Knowledge graph Embedding for Learning Semantic Attributes of Images
Developed a joint learning model to learn images along with detected captioned entities attribute to learn the semantic relationships between them through the knowledge graph embedding model

PPGNET: Massive Transfusion Predictor for Trauma Patients:
PPGNet is a deep learning model which can assist in automatic feature extraction from first 15 mins of PPG records of trauma patients to detect the need of transfusion within first 24 hrs.