

Anmol Goel

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RESEARCH INTERESTS

Knowledge graphs, graph neural networks, theoretical deep learning, differential geometry, NLP for low resource and code mixed language

EDUCATION

Guru Gobind Singh Indraprastha University

Bachelor of Technology, Computer Science — CGPA: 8.57/10, Class Rank: 13/127

Delhi, India

July 2021

EXPERIENCE

Precog Lab, IIIT-Delhi

Undergraduate Researcher — Advisor: Dr. Ponnurangam Kumaraguru

Delhi, India

Jan 2020 – Present

- Developed deep learning and kernel-based models to normalize entities in knowledge graphs. Paper under review.
- Studied graph curvature to analyze word meanings in Hindi. Work accepted at ACM CoDS COMAD 2021
- Explored user behaviour within and across communities in StackOverflow.

Wellwise

Research Intern

IIIT-Delhi, India

May 2019 - Aug 2019

- Developed large scale medical domain knowledge graphs and node2vec node embedding models for disease diagnosis.
- Wrapped trained models around an API to serve predictions in real time. Facilitated easy symptom triage service for users.

Defence Research and Development Organisation (DRDO)

Research Analyst

Delhi, India

May 2018 – July 2018

- Explored methods to model real-time epitaxy data from Solid State Physics Laboratory.
- Model deployed as web application. Improved inference time by 20%.

PUBLICATIONS

- [Anmol Goel](#), Ponnurangam Kumaraguru, “Detecting Lexical Semantic Change across Corpora with Smooth Manifolds.”, Under Review at AAAI’21
- [Anmol Goel](#), Ponnurangam Kumaraguru, “A Geometric Measure of Polysemy in Hindi Language”, ACM India Joint International Conference on Data Science & Management of Data (CODS-COMAD) [YRS] 2021

AWARDS AND HONORS

- Received NeurIPS 2020, ICML 2020 travel grant. Volunteer at ACL 2020
- Accepted into RegML Summer School 2020.
- Received Udacity Intel AI Scholarship.
- Secured 2nd position in Project Exhibition, TechRunn’18

PROJECTS

Knowledge Graphs Canonicalization

June 2020 – Present

- Developed a novel kernel-based deep model leveraging contextual BERT and meta embeddings to canonicalize entities in open knowledge graphs
- Studied and implemented several SOTA papers in KG embeddings domain.
- Built a dashboard to visualize and filter knowledge graph for users.
- Worked on real world proprietary recruitment domain data. Work currently under review.

Code Mixed Language Analysis

Sep 2020 - Present

- Analyzed mBERT and variants to analyze performance on code mixed data.
- Applied tools from computational neuroscience to study contextual representations of code mixed data and how it affects performance in downstream tasks.

- Interpreting code mixed representations.

Diachronic Lexical Semantics

Jul 2020 - Present

- Implemented a novel algorithm leveraging Riemannian manifolds to align embeddings and measure semantic change of words across different corpora.
- Currently under review at AAAI'21

Interpreting Node Embeddings

May 2020 - Present

- Analysing node embeddings from various current methods like node2vec to study the behaviour of such vectors.
- Applying Eigenspace analysis and tools from statistical mechanics to analyse the randomness of embeddings.

Community Analysis of StackOverflow

Sep 2020 - Present

- Studied real world data of user behaviour on stack overflow to analyse generalists and specialists.

Heartify

Nov 2018 - Jan 2019

- Developed a web API to serve predictions of early onset of chronic heart disease using historical symptoms data.
- Trained and deployed model via REST API.

TECHNICAL SKILLS

Languages: Python, Julia, Bash, C/C++, SQL (Postgres), JavaScript, HTML/CSS

Frameworks: PyTorch, Flask, Numpy, Matplotlib, Plotly

Developer Tools: Git, Docker, VS Code, Visual Studio