

# Apoorv Umang Saxena

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## RESEARCH INTERESTS

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I am broadly interested in machine learning, data mining, natural language processing and related fields. In my post-graduate work, I have had a specific focus on knowledge graphs (KG) and question answering. In this area, I have tried to improve QA performance by combining pre-trained language models with KG embeddings. I have also worked on making KG embeddings more scalable and easier to apply to downstream tasks. During my undergraduate studies I worked on humanoid robotics and computer vision.

## EDUCATION

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### Indian Institute of Science

Ph.D., Computational and Data Sciences. Advisor: Prof. Partha Talukdar

Bangalore

2018–Current

### Birla Institute of Technology and Science (BITS), Pilani

B.E. (Hons.) Computer Science, CGPA: 8.60/10.00

Pilani

2011–2015

## EXPERIENCE

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### IBM Research, India

Research Intern

Bangalore

Summer 2019

- As part of the NLG Group, I worked on the problem to generate highlights in NL from structured data
- Used table-to-text techniques to generate automatic summaries of match scorecards and weather reports

### Google

Software Engineer 3

Hyderabad

May 2016–March 2017

- I worked in the Apps for Work team (now re-branded as Google Workspace) as Software Engineer (Tools & Infrastructure) for the Permissions Management mobile app
- Developed and maintained automation tools to increase tester productivity

### Paypal

Software Engineer 1

Chennai

July 2015–November 2015

- As part of the Reporting team at PayPal I worked on migrating mid-tier Java services to a new framework

### Flipkart

PS 2 Intern

Bangalore

January 2015–June 2015

- Developed an Angular-based UI for a Master Data Management system in the Supply Chain Platform team

### Bhabha Atomic Research Centre

Summer Intern







Mumbai

Summer 2013

- Did project titled “Ascertaining bubble size distribution in immiscible liquid flows”
- Developed image processing techniques to measure bubble size distribution and their generation frequency

## PUBLICATIONS

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1. **A. Saxena**, A. Kochsiek, and R. Gemulla, “[Sequence-to-Sequence Knowledge Graph Completion and Question Answering](#)”, *Under review for ACL 2022*.  
2. **A. Saxena**, S. Chakrabarti, and P. Talukdar, “[Question Answering Over Temporal Knowledge Graphs](#)”, *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics, 2021*.  
3. **A. Saxena**, A. Tripathi, and P. Talukdar, “[Improving Multi-hop Question Answering over Knowledge Graphs using Knowledge Base Embeddings](#)”, *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics, 2020*.  
4. A. Gautam, **A. Saxena**, P. Mall, and S. Mohan, “[Positioning multiple mobile robots for geometric pattern formation: An empirical analysis](#)”, *Seventh International Conference on Contemporary Computing (IC3), 2014*

## SCHOLARSHIPS AND AWARDS

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- Recipient of Intel India PhD Fellowship 2018–Current
- Represented India and stood 4th in Robocup 2013 held in Netherlands 2013
- Awarded BITS merit scholarship for semesters 1-4 for being in the top 1% of current batch 2011–2013
- 1st position in DesertHack 2012, BITS Pilani, for application Kiri  2012
- 1st runner-up in image processing and robotics events at Techfest 2013 and 2014, IIT Bombay 2013-2014
- Secured rank 2,423 in IIT-JEE (top 0.49%), rank 301 in AIEEE (top 0.05%) 2011




## POSITIONS OF RESPONSIBILITY

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- Lead of computer vision team, Team Acyut (robotics club) at BITS Pilani 2012–2013
- Co-founded Embedded Systems & Robotics Laboratory, BITS Pilani 2014
- Reviewer at AKBC 2021, ACL 2021, ACL Rolling Review 2020–Present
- TA for course DS-226 “Introduction to Computing for AI and ML” at IISc Bangalore 2021
- Volunteer at EECS Symposium 2019 at IISc Bangalore 2019

## EXTRACURRICULAR PROJECTS

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- **Humanoid Robot Soccer**  2011–2015  
Member of team Acyut, which is a humanoid robotics project sponsored by Department of Electronics and Information Technology, Government of India. Represented India in Robocup 2013.
- **Swarm Robotics - Implementing Testbed Using e-puck Robots**  2014–2015  
Project for testing swarm algorithms and validating simulation results. Tested some solutions to the circle formation problem on a hardware testbed. The work led to a paper that was published in the IC3 2014.
- **Pediatric Practice Solution**  2012–Current  
Wrote an open source solution for pediatric practice management that has been in active use since 2013.

## SKILLS

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- **Machine Learning Tools:** PyTorch, Tensorflow, Keras
- **Programming:** Production level code in C, C++ and Java.
- **Web Development:** Angular, Node, HTML, PHP
- **Hardware:** AVR Microcontrollers, Arduino boards, Raspberry Pi
- **Design Software:** Adobe Photoshop, Autodesk Fusion 360