Apoorv Umang Saxena

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Research Interests

I am interested in Machine Learning (ML) and Natural Language Processing (NLP). My current research focus is on Question Answering over Knowledge Graphs, in particular using graph embedding based methods to achieve this.

Education

Indian Institute of Science   Bangalore
Ph.D., Computational and Data Sciences. Advisor: Prof. Partha Talukdar   2018–Current

Birla Institute of Technology and Science (BITS), Pilani   Pilani
B.E. (Hons.) Computer Science, CGPA: 8.60/10.00   2011–2015

Experience

IBM Research   Bangalore
Research Intern   Summer 2019

– Natural Language Generation Group
– Worked on the problem to generate interesting highlights in natural language from structured data e.g. match scorecards, weather reports.

Google   Hyderabad
Software Engineer 3   May 2016–March 2017

– Software Engineer (Tools and Infrastructure) in Google Apps for Work (now re-branded as GSuite)

Paypal   Chennai
Software Engineer 1   July 2015–November 2015

– Part of the Reporting team at PayPal
– Worked on migrating mid-tier Java services to a new framework

Bhabha Atomic Research Centre   Mumbai
Summer Intern   Summer 2013

– Ascertaining bubble size distribution in immiscible liquid flows
– Developed image processing techniques for automating bubble size estimation in chemical flows

Publications

[1] **A. Saxena**, A. Tripathi, and P. Talukdar, "Improving multi-hop question answering over knowledge graphs using knowledge base embeddings", in *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, Online: Association for Computational Linguistics, Jul. 2020, pp. 4498–4507.

[2] A. Gautam, **A. Saxena**, P. Mall, and S. Mohan, "Positioning multiple mobile robots for geometric pattern formation: An empirical analysis", in *2014 Seventh International Conference on Contemporary Computing (IC3)*, 2014, pp. 607–612.

Projects

- **Humanoid Robot Soccer** 2011–2015
  Worked in 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 and development since 2013. Source code is available on GitHub.

Skills

- **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, Basics of Autodesk Inventor

Scholarships and Awards

- 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

Extracurricular Activities

- Volunteer at EECS Symposium 2019 at IISc Bangalore 2019
- Lead of computer vision team, Team Acyut (Robotics club) at BITS Pilani 2012–2013