Shiv Kumar

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Education

Netaji Subhas Institute of Technology — New Delhi, India
Bachelor of Engineering in Information Technology; CGPA: 8.27/10 — *Expected May 2020*

Skills

- **Languages**: C++, Python, Javascript, Golang
- **Web**: HTML, CSS, NodeJS, Express, MongoDB
- **ML, DL & RL Frameworks**: Scikit Learn, NLTK, Tensorflow, Keras, pyTorch, openAI Gym
- **Other(s)**: Shell Scripting, mySQL, ROS, OpenCV

Experience

Laboratory for Computational Social Systems, I.I.I.T., New Delhi — New Delhi, India
Research and Development Intern (Natural Language Processing and Social Analytics) — *October'18 - March'19*

- **DeFrauder**: An unsupervised method based model to detect online fraud reviewer groups.
  - Collected and annotated two new datasets which would be useful to the cybersecurity community.
  - Explored several group-level behavioral traits to model inter-personal collusive dynamics in a group.
  - The devised model outperforms the best baseline (across various datasets) by **17.64% higher relative NDCG@50** (averaged over all the datasets)

Automated Rover and Embedded Systems Robotics, N.S.U.T. — New Delhi, India
Software Development Co-Lead — *August'18 - Present*

- **ATOM Autonomous Thread**: Collaborated to design the Stereo-visual odometry based autonomous thread for the rover submitted for participation in European Rover Challenge'19
  - Qualified for the on-site competition to be held in Poland from 13th-15th September.
  - Led a team of 10+ developers to design the thread.
  - Collaborated to create and maintain the website for the organisation.

Center for Advanced Information Technology Field Studies, N.S.U.T. — New Delhi, India
Undergraduate Researcher (Opportunistic Networks & Cryptography) — *September'18 - Present*

- **CIMP**: Researched on charging based incentivized message passing in Opportunistic Networks.
- ***ongoing***: Currently working on development of Image Steganography based application for password protection and management.

Projects

- **Dactyl** [Here]: Trained a double-jointed arm simulation to move to target locations using Deep Deterministic Policy Gradients (DDPG) Reinforcement Learning algorithm.
  - Used distributed experience collection to improve performance and reduce training time. Training done without this needed 1000+ episodes to train the agent.
  - Achieved benchmark score of **+30 in 125 episodes**.
- **ElectionYay** [Here]: A Data Mining & Transfer Learning based project to analyse different sentiment and focus points of General Elections 2019.
  - Extracted and created a dataset of more than **2 lakh tweets** related to the 2019 General Elections made available to other researchers.
  - Implemented and analysed different sentiment analysis methods, including transfer learning (based on language modeling) achieving approximately **70.3% test accuracy.**
  - Analsyed the most popular leaders and parties in the elections (sentiment independent) along with party wise sentiment analysis. Also analysed different points which were marked as important on the social platform towards the final verdict.
- **Magical Commands for Bash(MCB)**[Here]: Linux terminal commands replaced with harry potter spells enriching the terminal experience.
  - Started an open source project to bring together Harry Potter fans on Github to replace bash commands with harry potter spells to personalise terminal experience with regular improvements and maintenance.
  - Guided **17** beginners in open source to make their first contributions by making beginner friendly entry points during Hacktoberfest.

Publications

- Dhawan S., Reddy S., **Kumar S.**, Chakraborty T. (2019), *Spotting Collective Behaviour of Online Frauds in Customer Reviews*. International Joint Conference on Artificial Intelligence (IJCAI 2019), accepted for publication. To be presented in IJCAI'19, Macau.
- Sharma D.K., **Kumar S.**, Kumar A. (2018), *DNA based storage: Introduction, Characteristics Applications and Challenges*. International Journal of Machine Learning and Networked Collaborative Engineering(IJMLNCE), published.
- **Kumar S.**, Yadav A., Sharma D.K. (2019), *Deep Learning and Computer Vision in Smart Agriculture*. Modern Techniques for Agricultural Disease Management and Crop Yield Prediction, IGI publications, approved for publication.
- **Kumar S.**, Yadav A., Rastogi T., Sharma D.K. (2019), *Hybrid Computational Intelligence based Computer Vision Applications in Autonomous Robots*. Hybrid Computational Intelligence, Elsevier publications, approved for publication.

Extracurricular Activities & Noteable achievements

- Member of Award Winning Delegation representing Zambia at **Harvard Model United Nations Conference'17**, Boston, M.A., U.S.A.
- Participated in 10 M.U.N. conferences across New Delhi, **winning awards in 7** of them.
- Granted full scholarship to attend Open Source Summit and Embedded Linux Conference Europe 2019 to be held in Lyon.