Prithviraj Ammanabrolu

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Education

PhD Computer Science
2018 - Present

Georgia Institute of Technology

Advisor: Professor Mark O. Riedl

Research Areas: Natural Language Processing, Reinforcement Learning, Interactive Narrative, Knowledge Graphs, and Computational Creativity

Relevant Coursework: Deep Learning, Mathematical Statistics, Abstract Vector Spaces, Cognitive Science

B.S. Computer Science
2015 - 2018

Georgia Institute of Technology

Threads: Intelligence and Theory, Overall GPA 3.9

Relevant coursework: Machine Learning, Natural Language Processing, Advanced Algorithms

Work Experience

Research Assistant
Jan 2017 - Present

Entertainment Intelligence Lab, Georgia Tech - Atlanta, GA

- Exploring the use of deep reinforcement learning with natural language state and action spaces
- Using knowledge graphs to inject domain knowledge into language-based tasks
- Finding effective data representations and evaluation metrics for training neural networks in automated story generation and procedural quest generation for text-games

Research Intern
May 2019 - Aug 2019

Microsoft Research - Redmond, WA

- Worked with Matthew Hausknecht in the Reinforcement Learning team
- Aided in development of baseline text-game playing agents for Jericho, a text-game playing platform
- Developed SOTA RL algorithm that is able to dynamically generate language in text-games

Software Engineering Intern
May 2018 - Aug 2018

Oracle Intelligent Bots Service - Redwood City, CA

- Developed a novel patent pending algorithm to generate a noisy knowledge graph for a low resource natural language dataset
- Created a method that improves the natural language understanding capabilities of the chatbot platform utilizing the generated graph and graph embedding techniques

Machine Learning Intern
May 2017 - May 2018

Radix Health - Atlanta, GA

- Used machine learning and predictive analytics techniques to model patients' no-show risks for healthcare clinics
- Wrote APIs to deploy a machine learning system in a production environment
- Used natural language processing to design a chatbot to improve patient access

Teaching Experience

Teaching Assistant

Aug 2017 - Present

CS-3600: Intro to Artificial Intelligence, Georgia Tech - Atlanta, GA

- Helping author and grade homeworks, projects and tests
- Answering students' questions in-person and on dedicated online forums

Individual Student Guidance

Aug 2018 - Present

- Wesley Cheung, MS Computer Science
- Ethan Tien, MS Computer Science
- William Broniec, MS Computer Science
- William Ma, MS Computer Science
- Jeffery Luo, BS Computer Science
- Alejandro Escontrela, BS Computer Science

Publications

P Ammanabrolu, W Broniec, A Mueller, J Paul, and MO Riedl *Toward Automated Quest Generation in Text-Adventure Games*. arXiv preprint arxiv:1909.06283. Preprint.

P Ammanabrolu, E Tien, W Cheung, Z Luo, W Ma, LJ Martin, and MO Riedl *Story Realization: Expanding Plot Events into Sentences*. arXiv preprint arxiv:1909.03480. Preprint.

Archival Conferences/Workshops

P Ammanabrolu and MO Riedl *Transfer in Deep Reinforcement Learning using Knowledge Graphs*, In TextGraphs at EMNLP 2019. Hong Kong.

P Ammanabrolu, E Tien, W Cheung, Z Luo, W Ma, LJ Martin, and MO Riedl *Guided Neural Language Generation for Automated Storytelling*, In Storytelling at ACL 2019, Florence, Italy.

P Ammanabrolu and MO Riedl *Playing Text-Adventure Games with Graph-Based Deep Reinforcement Learning*, NAACL-HLT 2019, Minneapolis, MN.

LJ Martin, **P Ammanabrolu**, X Wang, W Hancock, S Singh, B Harrison, and MO Riedl. *Event Representations for Automated Story Generation with Deep Neural Nets*, Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18), New Orleans, LA.

Non-archival Workshops

M Hausknecht, **P Ammanabrolu**, MA Cote, and X Yuan *Interactive Fiction Games: A Colossal Adventure*. arXiv preprint arxiv:1909.05398. Deep Reinforcement Learning Workshop at NeurIPS 2019. Vancouver, CA.

P Ammanabrolu and MO Riedl *Playing Text-Adventure Games with Graph-Based Deep Reinforcement Learning*, NeurIPS 2018 Wordplay: Reinforcement and Language Learning in Text-based Games Workshop, Montreal, QC.

LJ Martin, **P Ammanabrolu**, X Wang, S Singh, B Harrison, M Dhuliawala, P Tambwekar, A Mehta, R Arora, N Dass, C Purdy, and MO Riedl *Improvisational Storytelling Agents*, NeurIPS 2017 Workshop on Machine Learning for Creativity and Design, Long Beach, CA.

LJ Martin, **P Ammanabrolu**, W Hancock, S Singh, B Harrison, and MO Riedl. *Event Representations for Automated Story Generation with Deep Neural Nets*, KDD 2017 Workshop on Machine Learning for Creativity, Halifax, NS.

Projects

Hackathons

2015 - 2016

- HackIllinois: *Health Desk* - Desktop app that checks posture using computer vision
- SwampHacks: *Labyrinth* - 3D survival maze game built with Unity engine and C#; top 10 overall
- HackGT: *CorCal* - App to sync multiple calendars; built with Java and the Swing library
- VG Dev Club at Georgia Tech Project
  - *Time Before Time* - Physics based puzzle game using the Unity engine and C#

Skills

Technical: Natural Language Processing, Reinforcement Learning, Machine Learning, Knowledge Graphs, Semantic Web Technologies, Computer Vision, Predictive Analytics, Agile Methodologies, NoSQL

Programming Languages: Python, R, Java, C/C++, C#, SQL, SPARQL

Frameworks and Tools: pyTorch, scikit-learn, Tensorflow, nltk, AutoML, Couchbase, MongoDB, Spring Boot

Languages: English, Telugu, Sanskrit