

# Abhinav Bhatia

Ph.D. student at University of Massachusetts Amherst | [abhinavbhati@cs.umass.edu](mailto:abhinavbhati@cs.umass.edu) | [abhinavbhatia.me](http://abhinavbhatia.me)

## INTERESTS

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Artificial Intelligence, Deep Reinforcement Learning, Real-time Planning

## EDUCATION

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### University of Massachusetts Amherst

3.94/4

*MS/Ph.D. in Computer Science, advised by Prof. Shlomo Zilberstein*

*Fall 2019 – Present*

- At *Resource Bounded Reasoning* lab, I conduct research on metareasoning and meta-reinforcement-learning methods, to make autonomous agents operate efficiently with limited samples and in real-time.

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

9.27/10

*B.E. (Hons.) in Computer Science*

*Aug. 2011 – May 2015*

## EXPERIENCE

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### Research Engineer

June 2017 – July 2019

*School of Computing and Information Sciences, Singapore Management University*

*Singapore*

- Supervised by Prof. Pradeep Varakantham and Prof. Akshat Kumar.
- Worked on optimizing constrained resource allocation at scale using deep reinforcement learning, which led to a publication at *International Conference on Automated Planning and Scheduling (ICAPS) 2019*.

### Software Engineer

August 2015 – June 2017

*WalmartLabs*

*Bengaluru, India*

- Was part of *Operations, Analytics & Research* team for supply-chain division of Walmart's eCommerce.
- Developed an Elasticsearch based distributed database for data analysis.
- Developed a deep-learning based system for anomaly-detection in large live incoming data streams.

### Software Development Engineering Intern

January 2015 – June 2015

*Amazon*

*Bengaluru, India*

- Worked on offline experience for Prime Video.
- Worked on optimizing content load time for Prime Video on Kindle tablets.

## PUBLICATIONS

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Samer B. Nashed, Justin Svegliato, **Abhinav Bhatia**, Stuart Russell and Shlomo Zilberstein (2022). "Selecting the partial state abstractions of MDPs: A metareasoning approach with deep reinforcement learning." In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)*.

**Abhinav Bhatia**, Justin Svegliato, Samer B. Nashed and Shlomo Zilberstein. "Tuning the Hyperparameters of Anytime Planning: A Metareasoning Approach with Deep Reinforcement Learning". In *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS 2022)*.

**Abhinav Bhatia**, Philip S. Thomas, and Shlomo Zilberstein. "Adaptive Rollout Length for Model-Based RL Using Model-Free Deep RL". In *(ArXiv 2022)*.

**Abhinav Bhatia**, Justin Svegliato and Shlomo Zilberstein. "On the Benefits of Randomly Adjusting Anytime Weighted A\*". In *Proceedings of the International Symposium on Combinatorial Search (SoCS 2021)*.

**Abhinav Bhatia**, Justin Svegliato and Shlomo Zilberstein. "Tuning the Hyperparameters of Anytime Planning: A Deep Reinforcement Learning Approach". In *ICAPS Workshop on Heuristics and Search for Domain-independent Planning (HSDIP 2021)*.

**Abhinav Bhatia**, Pradeep Varakantham and Akshat Kumar. "Resource Constrained Deep Reinforcement Learning". In *Proceedings of the International Conference on Automated Planning and Scheduling (ICAPS 2019)*.

## TEACHING EXPERIENCE

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### CS383 Artificial Intelligence

UMass Amherst

*Responsible for designing quizzes, clarifying students' doubts and holding office hours*

*Fall 2022*

## MISC.

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- Program committee member, AAAI 2023.
- Paper reviewer, AIJ 2021.
- As a member of IEEE BITS-Pilani chapter, conceptualized, developed and organized an AI bot making competition for a video game at college tech festival 2014.
- Won 1st prize for project *PC 3D Gesture Interface using Kinect* in design appliances category at BITS-Pilani tech festival 2014.
- Offered *Kishore Vaigyanik Protsahan Yojana* fellowship, which is an initiative by govt. of India to encourage young students to pursue a career science research, 2010.

## PROGRAMMING SKILLS

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**Languages:** Experienced in Python, Julia, C/C++, Java. Familiar with C#, SQL

**Framworks:** OpenAI Gym, PyTorch, FluxML, Tensorflow, CPLEX, Elasticsearch, Unity3D

Experienced in implementing a variety of deep reinforcement learning and planning algorithms.

## RELEVANT PH.D. COURSEWORK

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Reinforcement Learning, Machine Learning, Neural Networks, Artificial Intelligence, Robotics, Advanced Algorithms, Empirical Research Methods

## LINKS

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**Webpage:** <https://abhinavbhatia.me>

**Github:** <https://github.com/bhatiaabhinav>

**Google Scholar:** <https://scholar.google.com/citations?user=Y53CNrIAAAAJ&hl>

## CONTACT INFORMATION

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