

# Abhijeet Krishnan

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<https://github.com/AbhijeetKrishnan> 

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## Education

**North Carolina State University** Raleigh, NC, USA  
*PhD, Department of Computer Science* Jan 2018 - July 2024

- **Co-advised by:** Dr. Arnav Jhala, Dr. Chris Martens
- **Thesis:** Interpretable Strategy Synthesis for Competitive Games

**North Carolina State University** Raleigh, NC, USA  
*Master of Science in Computer Science* Jan 2018 - Dec 2020

**Visvesvaraya National Institute of Technology** Nagpur, MH, India  
*Bachelors of Technology, Department of Computer Science and Engineering* Aug 2013 - May 2017

- **Thesis:** Natural Language to Structured English Translation: A Comparative Study of Machine Translation Approaches

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## Work Experience

**TCS Research** Remote  
*Intern* June 2023 - Aug 2023

- Researched the applicability of the decision transformer model to the problem of synthesizing programmatic policies
- Implemented the decision transformer in PyTorch, and plotted results using pandas and matplotlib
- Open-sourced a Python [package](#) to enable reproducible benchmarking

**Zynga Inc.** Remote  
*Data Science Intern* May 2021 - Aug 2021

- Extended a game-description language to enable expressing **four** new game modes in the mobile game [Spell Forest](#)
- Refactored a Python-based simulator framework used by a team of **10** people along with producing tests and documentation

**Principles of Expressive Machines (POEM) Lab** Raleigh, NC, USA  
*Graduate Research Assistant* Jan 2019 - Dec 2019

- Invented a rule-based model for predicting player skill that could be learned from gameplay traces
- Invented a learning algorithm that outperformed a SOTA algorithm at the task by **40%**
- Implemented model using action model learning in Python and PDDL.

**Knexus Research Corp.** National Harbor, MD, USA  
*AI Intern* June 2019 - Aug 2019

- Developed a proof-of-concept for an automated planning-based system for generating children's stories using a novel story graph generation algorithm
- Collaborated using gitflow on a Python codebase that used PDDL and a Java-based planner.

Goldman Sachs  
Summer Employee

Bengaluru, KA, India  
May 2016 - Aug 2016

- Developed and tested a patch for a bug in a critical 1500+ line C++ codebase
- Developed a real-time dashboard to monitor server statistics in JavaScript and PHP
- Won Codebreak 2016, an internally-held coding contest for interns

## Publications

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- **Krishnan, Abhijeet**, Colin M. Potts, Arnav Jhala, Harshad Khadilkar, Shirish Karande and Chris Martens. "Learning Explainable Representations of Complex Game-playing Strategies." *Proceedings of the Eleventh Annual Conference on Advances in Cognitive Systems*. 2024.
- **Krishnan, Abhijeet** and Chris Martens. "Synthesizing Chess Tactics from Player Games." *Workshop on Artificial Intelligence for Strategy Games (SG) and Esports Analytics (EA), 18th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. 2022.
- **Krishnan, Abhijeet** and Chris Martens. "Towards the Automatic Synthesis of Interpretable Chess Tactics." *Explainable Agency in Artificial Intelligence Workshop, 36th AAAI Conference on Artificial Intelligence*. 2022.
- **Krishnan, Abhijeet**, Aaron Williams, and Chris Martens. "Towards Action Model Learning for Player Modeling." *Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. Vol. 16. No. 1. 2020.
- **Krishnan, Abhijeet** and Chris Martens. "Rule-based Cognitive Modeling via Human-Computer Interaction." Poster presented at: *5th LAS Research Symposium*; 2019 Dec 10; Raleigh, NC.

## Academic Service and Involvement

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### Reviewing and Program Committee Membership

- International Conference on Foundations of Digital Games 2022
- AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment 2021-22,24
- IEEE Conference on Games 2019-22
- AAAI Experimental AI in Games, AIIDE Workshop 2020
- IEEE Symposium Series on Computational Intelligence 2020

## Skills

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**Machine Learning** Neural networks deep learning game AI reinforcement learning offline RL

transformer model

**Languages** Python C C++ Rust JavaScript Prolog

**Applications** git Linux Figma

**Libraries** PyTorch TensorFlow numpy pandas Gymnasium PettingZoo SvelteKit