

Abhijeet Krishnan

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Education

- **North Carolina State University** Raleigh, NC, USA
PhD, Department of Computer Science Jan 2018 - present
 - Relevant courses: Introduction to Game Engine Design, Advanced Topics in Machine Learning, Experimental Statistics for Engineers I
- **North Carolina State University** Raleigh, NC, USA
Master of Science in Computer Science (en-route), Department of Computer Science Jan 2018 - Dec 2020
- **Visvesvaraya National Institute of Technology** Nagpur, MH, India
Bachelors of Technology, Dept. of Computer Science and Engineering Aug 2013 - May 2017
 - Relevant courses: Statistics and Optimization Techniques, Artificial Intelligence, Neuro-fuzzy Techniques

Work Experience

- **Tata Consultancy Services Ltd.** Remote
Intern June 2023 - Aug 2023
 - Applied the decision transformer model to synthesize optimal programmatic policies for MicroRTS using offline RL.
 - Developed the grammar-based synthesis problem as a Gymnasium environment for reuse.
 - Reference: Harshad Khadilkar
- **Zynga Inc.** Remote
Data Science Intern May 2021 - Aug 2021
 - Extended the grammar and interpreter of a game-description language used to develop the mobile game Spell Forest to enable expressing new game modes.
 - Redesigned an existing simulator framework used for level testing for scalability and testing of game levels with different agent behaviours.
 - Reference: Yang Wen
- **Principles of Expressive Machines (POEM) Lab** Raleigh, NC, USA
Graduate Research Assistant Jan 2019 - Dec 2019
 - Advisor: Dr. Chris Martens
 - Investigating rule-based models for modeling players of games which account for player mental models. We aim to explain and predict player behavior using rule-based player models.
- **Knexus Research Corp.** National Harbour, MD, USA
AI Intern June 2019 - Aug 2019
 - Designed and developed a system for generating children's stories.
 - Invented a story graph structure to generate infinitely varying plots from a bank of mini-plots.
 - Used an automated planning tool for narrative generation.
 - Presented the technical details of the system to an audience of senior software engineers.
 - References: Dr. Michael Floyd, Justin Karneeb
- **Goldman Sachs** Bengaluru, KA, India
Summer Employee May 2016 - Aug 2016
 - Developed and tested a patch for a bug in a 1500+ line C++ codebase.
 - Developed a real-time dashboard to monitor server statistics in Javascript and PHP.
 - Developed a Python+bash automation script as part of an intra-division hackathon.
 - Reference: Nitin Bansal

Publications

- **Krishnan, Abhijeet** and Chris Martens. "Synthesizing Chess Tactics from Player Games." In *Workshop on Artificial Intelligence for Strategy Games (SG) and Esports Analytics (EA), 18th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*. 2022 (in press).
- **Krishnan, Abhijeet** and Chris Martens. "Towards the Automatic Synthesis of Interpretable Chess Tactics." In *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

- **Reviewing and Program Committee Membership**

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

Academic Projects

- **Player Modelling using Gameplay Video Classification**

Artificial Intelligence II, CSC 720 Jan 2019 - Apr 2019

- Designed and trained an ML model to classify gameplay videos based on player behaviour.
- Developed a classifier based on a finetuned Inception v3 ConvNet followed by an LSTM in TensorFlow.
- Trained and tested the model on the Google Colab platform.
- Achieved a test accuracy of 93%.

- **Level Generation using ASP for Laserverse**

Generative Methods for Game Design, CSC 791 Oct 2018 - Dec 2018

- Designed a level generator for a puzzle game.
- Used Answer Set Programming to model game rules.
- Performed a quantitative evaluation of the expressive range of the generator.

Skills

Languages: Python, C++, C, bash

Applications: git

Libraries: TensorFlow, PyTorch

Activities and Leadership

- **Competitive Coding**

Aug 2015 - present

- Within top 2% in India on Codechef, within top 5% in India on Codeforces
- Winner of Codebreak 2016, an internally held coding contest for interns at Goldman Sachs.

- **Literary and Magazine Affairs Secretary**

Nagpur, MH, India

Visvesvaraya National Institute of Technology

Aug 2016 - May 2017

- Recruited and led a team of student designers and writers to produce the annual institute magazine, Insight 2017
- Planned and organized multiple annual institute events, such as Freshers '16 and Institute Gathering '17

- **Training & Placement Affairs Coordinator, CSE**

Nagpur, MH, India

Visvesvaraya National Institute of Technology

Aug 2015 - May 2017

- Organized skill-building and expert talks for fellow students.
- Assisted 7+ companies with their on-campus hiring process.