

# Abhijeet Krishnan

abhijeet.krishnan@gmail.com

<https://abhijeetkrishnan.me>

<https://www.linkedin.com/in/abhijeet-krishnan>

<https://github.com/AbhijeetKrishnan>

## Education

---

- **North Carolina State University** Raleigh, NC, USA  
*PhD, Department of Computer Science*  
Jan 2018 - present
  - Advised by: Dr. Arnav Jhala, Dr. Chris Martens
- **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

## Work Experience

---

- **TCS Research** 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 to enable expressing new game modes in the mobile game Spell Forest.
  - 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 based on narrative theory 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.