Ankesh Anand

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ankeshanand.com

Education

- **Mila, University of Montreal** — Montreal, Canada
  PhD in Machine Learning, supervised by Aaron Courville — *Fall 2017 - May 2022*
- **Indian Institute of Technology (IIT), Kharagpur** — Kharagpur, India
  Integrated M.Sc. in Mathematics and Computing — *2011 - 2016*

Work Experience

- **Google DeepMind** — London, UK
  Research Scientist, Senior Research Scientist — *October 2022 - Present*
  - Core Contributor on Gemini 1.0, Gemini 1.5 and Gemini 2.0; worked across several verticals: Evals, Post-Training, Reasoning, Computer-Use.
  - Co-led key RL (Reinforcement Learning) / Inference-time breakthroughs that led to Gemini's largest improvements till date across reasoning and coding benchmarks. These were shipped as part of our flagship models, **Gemini 2.0 Flash** and **Gemini 2.0 Flash Thinking.**
  - Contributed to a series of post-training quality improvements to the **Gemini 1.5 Pro** being #1 on LMSYS.
  - Made key RL contributions to Gemini's computer use agent **Project Mariner**: a frontier model/agent with state-of-the-art performance on web navigation tasks.
  - Built internal, unleaked evals to track frontier reasoning and long context capabilities.
- **DeepMind** — London, UK
  Research Intern, Advisor: Jessica Hamrick — *Feb 2021-June 2021*
  - Worked on identifying generalization capabilities of MuZero, and how to amplify them using self-supervised learning.
  - The internship project led to a first-author paper at ICLR'22: Procedural Generalization by Planning with Self-Supervised World Models
- **Microsoft Research** — Montreal, Canada
  Research Intern, Advisor: Philip Bachman — *Sept 2019-May 2020*
  - Worked on self-supervised learning for data-efficient RL.
  - The internship project led to a first-author publication at ICLR'21: Data-Efficient Reinforcement Learning with Self-Predictive Representations
- **Microsoft Research** — Montreal, Canada
  Research Intern, Advisor: Marc Cote, Devon Hjelm — *January-June 2019*
  - Research at the intersection of Reinforcement Learning and Representation Learning.
  - The internship project led to a first-author publication at NeuRIPS'19: Unsupervised State Representation Learning in Atari
- **VISA Inc.** — Bangalore, India
  Software Engineer — *August 2016-August 2017*
  - Full stack development for the VISA Developer Platform

- **Google Summer of Code** Remote
  Student Developer *May-August 2015*
  - Built an online analytics platform for BRL-CAD which provides aggregated analytics for logs and performance metrics collected across different machines and platforms.

Selected Publications

- **Beyond human data: Scaling self-training for problem-solving with LLMs** (arxiv)
  Avi Singh, John D Co-Reyes, Rishabh Agarwal, ***Ankesh Anand****, Piyush Patil, Xavier Garcia, ..., Ethan Dyer, Behnam Neyshabur, Jascha Sohl-Dickstein, Noah Fiedel*
  TMLR

- **Procedural Generalization by Planning with Self-Supervised World Models** (arxiv)
  Ankesh Anand*, Jacob Walker*, Yazhe Li, Eszter Vrtes, Julian Schrittwieser, Sherjil Ozair, Thophane Weber, Jessica B. Hamrick*
  Internal Conference on Learning Representations (ICLR), 2022

- **Pretraining Representations for Data-Efficient Reinforcement Learning** (arxiv)
  Max Schwarzer, Nitarshan Rajkumar, Michael Noukhovitch, ***Ankesh Anand****, Laurent Charlin, Devon Hjelm, Philip Bachman, Aaron Courville*
  Neural Information Processing Systems (NeurIPS), 2021

- **Data-Efficient Reinforcement Learning with Self-Predictive Representations** (arxiv)
  Max Schwarzer,****Ankesh Anand****, Rishab Goel, R Devon Hjelm, Aaron Courville, Philip Bachman*
  Internal Conference on Learning Representations (ICLR), 2021 (Spotlight)

- **Unsupervised State Representation Learning in Atari** (arxiv)
  Ankesh Anand*, Evan Racah*, Sherjil Ozair*, Yoshua Bengio, Marc Cote, Devon Hjelm*
  Neural Information Processing Systems (NeurIPS), 2019

- **HoME: a Household Multimodal Environment** (arxiv)
  Simon Brodeur, Ethan Perez,* ***Ankesh Anand****, Florian Golemo*, Luca Celotti, Florian Strub, Jean Rouat, Hugo Larochelle, Aaron Courville*
  International Conference on Learning Representations (ICLR) Workshop Track, 2018

- **We used Neural Networks to Detect Clickbaits: You won't believe what happened Next!** (arxiv)
  Ankesh Anand*, Tanmoy Chakraborty, Noseong Park*
  European Conference on Information Retrieval (ECIR), 2017

Technical Skills

- **Programming Languages:**
  - **Proficient:** Python, JavaScript, C++
- **Machine Learning Libraries:** PyTorch, JAX, numpy, Pandas
- **Web Development:** Django, Flask, NodeJS, ReactJS, HTML5, CSS3, MySQL