

ADITYA AHUJA

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EDUCATION

- + **University of California, San Diego** - M.S. in Computer Science (*GPA: 3.9/4.0*) Sep '21 - Dec '22
- + **BITS Pilani, India** - B.E. in Computer Science. Aug '17 - Jul '21

WORK EXPERIENCE

- + **Graduate Research Assistant - Bazhenov Research Group, UCSD** [[Web](#)] Jan '22 - Current
 - Working at the intersection of Computer Vision and Neuroscience, using sleep algorithms for Object Detection.
- + **Open Source Research - CERN, Google Summer of Code (GSoc)** [[Code](#) | [Blog](#)] Jun '21 - Aug '21
 - Built Deep Generative models based on Normalizing Flows to simulate Particle Event Collisions in DeepFalcon.
 - Trained models that could effectively model sparse Particle Jet data and estimate distribution of new Collisions.
- + **Visiting Researcher - Visual Computing Group, Harvard University** [[Web](#)] Jan '21 - Jun '21
 - Research on few-shot 3D instance segmentation models for [RhoANA](#) and [PyTorch Connectomics](#) frameworks.
 - Developed techniques for few-shot training of Vision models using Knowledge Distillation and geometric instance priors.
- + **Research Intern - ECMWF** [[Web](#) | [Project](#)] Jul '20 - Sep '20
 - ECMWF is Europe's largest meteorological research institute, serving ~ 400 TB of critical weather data daily.
 - Built models for online Time-Series Anomaly Detection/Forecasting in data servers, reducing downtimes by up to 4 hours.
 - Work supported by a grant of £5,000 and done as part of ECMWF's Summer of Code program - [ESoWC](#).
- + **Software Development Intern - Media.net, Directi** [[Web](#)] May '20 - Jul '20
 - Media.net is one of the largest Ad-Tech companies in the world, specifically focused on contextual advertisements.
 - Developed client-side JavaScript modules to predict and act on malicious add scripts, identifying common attack vectors.
- + **Undergraduate Researcher - APPCAIR & TCS Research** [[Web](#) | [Demo](#)] Jan '20 - Dec '20
 - Worked on four projects - ① Compositional Visual Reasoning using Action Graphs, ② Joint Neuro-Symbolic training, ③ Root Cause Analysis in Time Series datasets, & ④ Optimising RL algorithms using the Winnow Learning Rule.
 - 1. Developed Computer Vision methods to model temporal reasoning among objects on the CATER dataset (Demo above).
 - 2. Built Neuro-Symbolic reasoning models for Bongard Problems, extending previous work on the DeepProbLog framework.
 - 3. Explored Anomaly Detection, Correlation and Root-Cause Analysis algorithms for multi-variate Time Series data.
 - 4. Focused on using the Winnow Learning Rule to speed up inference time on standard Reinforcement Learning algorithms.

LEADERSHIP & MENTORSHIP EXPERIENCE

- + **President - Society for Artificial Intelligence and Deep Learning** [[Web](#) | [GitHub](#)] Jun '20 - Jun '21
 - Organised the [AI Research Symposium](#) - hosting top researchers from industry & academia with 3000+ registrations.
 - Lead a group (~ 30) of talented undergraduates, holding Paper Reading sessions and working on Open-Source projects.
- + **Teaching Assistant (thrice) - Machine Learning & Meta Learning** [[Web](#) | [GitHub](#)] Jan '20 - May '21
 - Conducted Labs & Tutorials for multiple Undergraduate (Machine Learning) and Graduate (Meta Learning) Courses.
 - Responsible for guiding student research projects at the intersection of Deep Learning and Meta Learning.

PUBLICATIONS

- + Tirtharaj Dash, Sharad Chitlangia, **Aditya Ahuja**, & Ashwin Srinivasan. *A Review of Some Techniques for Inclusion of Domain-Knowledge into Deep Neural Networks*. **Nature Scientific Reports**. [[Arxiv](#)]

AWARDS & MISCELLANEOUS

- + **AI Summer School - Google Research India** [[Website](#)] Jul '20
 - Among 150 students selected across India to attend a sponsored Summer School on Machine Learning.
 - Offered a seat in the Computer Vision track (among 50 students) in line with previous research experiences.
- + **Google HashCode 2020** Feb '20
 - Ranked 86/3116 among all Indian teams - **Global Rank : 922/10724** [[Scoreboard](#)]
- + **CBSE Group Mathematics Olympiad - National Level** [[Ranklist](#)] Dec '14
 - Secured **All India Rank 12** in CBSE Group Mathematics Olympiad (preliminary qualifier for IMO) in class 10.
 - Among 33 students from CBSE grades 9-11 to qualify for Indian National Mathematical Olympiad (INMO).
- + **Technical Skills** - Python, C++, Javascript, Bash, PyTorch, Tensorflow, Keras, OpenCV, Prolog, MySQL
- + **Experience** - Computer Vision, Generative Models, Machine Learning, Data Structures and Algorithms
- + **Interests outside programming** - Art-house Films, Swimming and Squash.