MANASI SHARMA

Graduate Student in Computer Science (AI/ML Track) at Stanford University
www.linkedin.com/in/manasi1 | github.com/manasi-sharma

EDUCATION

Stanford University, School of Engineering — Stanford, CA
M.S. in Computer Science *(Expected)*, Current GPA: **3.91/4.00** — *Sep 2021 - Jun 2023*

- Areas of Interest: Artificial Intelligence, Machine Learning, Computer Vision, Decision-Making
- Key Courses:

• Decision Making Under Uncertainty	• Algorithms for Interactive Robotics	• Experimental Robotics*
• Machine Learning with Graphs	• NLP with Deep Learning	• Spoken Language Processing*
• CS Department Lecture Series	• CS Independent Project	• Knowledge Graphs*

** Planned to complete by June 2022*

Columbia University, Columbia College — New York, NY
B.A. Computer Science with concentration in Physics, GPA: **3.81/4.00** — *Aug 2017 - Jun 2021*

- Key CS Courses: AI, ML, Deep Learning for CV, NLP, Comp. Aspects of Robotics, Adv. Programming, CS Theory, Data Structures & Algorithms, Analysis of Algorithms, Linear Algebra, Prob. & Statistics, Discrete Math, Calculus III/IV

TECHNICAL SKILLS

- Programming/Scripting Languages: Proficient: Python, Java, C++/C, LaTeX; Familiar: Julia, SQL, SQLite
- Frameworks: TensorFlow, Keras, PyTorch, Scikit-Learn, NLTK, PyBullet, MeshLab, NetworkX, PyG, OpenCV
- Tools: Colab/GCP, Jupyter Notebooks, Visual Studio, Git, MySQL (Familiar)
- OS/Libraries: Linux, Windows

WORK EXPERIENCE

Alliance Innovation Lab Silicon Valley (Renault-Nissan-Mitsubishi) — Santa Clara, CA
Research Intern, Autonomous Systems (Upcoming) — *Jun 2022 – Sep 2022*

- Work on AI/ML perception research involving object detection for autonomous vehicles.

Stanford University, Stanford Vision Laboratory — Stanford, CA
Course Assistant for CS231N (CNNs for Visual Recognition, Prof. Fei-Fei Li and Jiajun Wu) — *Mar 2022 – May 2022*

- Office Hours, Homework design and grading, etc. for >400 students in one of the most popular courses at Stanford.

Columbia University, Department of Mathematics — New York, NY
Teaching Assistant, Calculus III (Prof. Konstantin Aleshkin & others) — *Sep 2019 – Jun 2021*

- Graded assignments, led weekly office hours, etc., for ~150 students in the undergraduate Calculus III class. Consistently received >80% excellent reviews.

RESEARCH EXPERIENCE

Stanford University, Stanford Vision Laboratory — Stanford, CA
Research Intern, iGibson Project (Prof. Fei-Fei Li and Prof. Jiajun Wu) — *Sep 2021 – present*

- Attention-designed Dataset Augmentation: Implementing saliency / attention map methods for detecting and preserving informative regions, and using a Gaussian blur for the background to intelligently implement dataset augmentation. Early data shows ~23% improvement in results.
- Collecting and annotating Virtual Reality demos to simulate 500+ household activities as part of the iGibson and the BEHAVIOR challenge projects. The goal is to create a curated benchmark dataset, analogous to ImageNet, to support research in large-scale training of robotic agents.

Columbia University, Department of Computer Science & Department of Astronomy — New York, NY
Research Intern, Data Science Institute (Prof. Daniel Hsu and Prof. Zoltan Haiman) — *Sep 2019 – Jun 2021*

- Implemented Saliency Maps to evaluate the performance of deep learning neural network algorithms for weak gravitational lensing map datasets. Determined that for noiseless maps, 89% of the DNN output was attributed to negative pixels (voids), while for noisy maps, 68% of the DNN output was attributed to high pixel regions (galaxies).

California Institute of Technology, Computing + Mathematical Sciences (CMS) Department Pasadena, CA
Undergraduate Research Intern, TensorLab (Prof. Anima Anandkumar) *Jun – Aug 2020*

- Optimized a novel SEM-ICA algorithm for Causal Inference through CGD to reduce the no. of interventions required.

California Institute of Technology, Division of Physics, Mathematics and Astronomy Pasadena, CA
Visiting Undergraduate Research Intern, Palomar Gattini-IR Group (Prof. Mansi Kasliwal) *Jun – Aug 2019*

- Developed and deployed in Palomar Gattini-IR Telescope's data processing pipeline a Deep Learning Classifier for scoring Transient sources, using a 2-layer Convolutional Neural Network that achieved ~97.5% accuracy.

Columbia University, Department of Physics New York, NY
Laidlaw Research Intern, NuSTAR Group (Prof. Charles Hailey) *Jun 2018 – May 2019*

- Modeled/analyzed data from NASA's NuSTAR telescope for 'AM Her' & 'HU Aqr' sources to determine key parameters such as temperature and periodicity.

LEADERSHIP ROLES / ACTIVITIES

- Founder & Project Leader, COVID-19 Public Hub website highlighting Columbia research *Apr 2020 – Jun 2021*
- Corporate Chair, Women in Computer Science, Columbia University *Apr 2020 – Jun 2021*
- Class 3 Curriculum Developer (AI section), Girls Who Code, Columbia University *Feb 2020 – Aug 2020*
- Executive Board UG Student Coordinator, Columbia Society for Women in Physics *Sep 2018 – Sep 2019*
- Organizational Committee Member, Columbia Science Review (CSR) Online Journal *Sep 2017 – Jun 2021*

HONORS

- Accepted into the GFSD (Graduate Fellowships for STEM Diversity) Program *Mar 2022*
- Accepted into Google's CS Research Mentorship Program (CSRMP), Class of 2022A *Feb 2022*
- Columbia URF Summer Research Fellowship, Columbia College Summer Funding Program *May 2020*
- Laidlaw Undergraduate Research and Leadership Scholarship, Columbia University *2018 – 2019*
- Visiting Undergraduate Research Program (VURP) Award, California Institute of Technology *May 2019*
- Andy Grove Scholarship for Intel Employees' Children, Intel Foundation *2019*
- Dean's List (6/7 graded semesters), Columbia University *Fall 2017 – Fall 2020*

PUBLICATIONS / PRESENTATIONS

- Co-author, Matilla, J. et al, 'Interpreting DL…', submitted, Amer. Phys. Soc., arXiv:2007.06529 *July 2020*
- Co-author, De, K. et al, 'Palomar Gattini-IR….', Pub. of the Astro. Soc. of Pacific, 132:025001 *Feb 2020*
- 'DL Classifier for Palomar Gattini-IR Telescope', GROWTH Conference, San Diego State Univ. *Aug 2019*
- 'NuSTAR observation of Polars', Ivy League Research Symposium, Univ. of Pennsylvania *Apr 2019*

CONFERENCES

- Virtual Grace Hopper Celebration of Women in Computing (vGHC) Conference *Sep 2020*
- GROWTH Annual Conference, San Diego State University *Aug 2019*
- Conference for Undergraduate Women in Physics (CUWiP), APS, Yale University *Jan 2020*
- Conference for Undergraduate Women in Physics (CUWiP), APS, The College of New Jersey *Jan 2019*
- Conference for Undergraduate Women in Physics (CUWiP), APS, Columbia University / CCNY *Jan 2018*
- Accepted to Stanford Undergraduate Research Conference 2020 (cancelled due to COVID-19) *Apr 2020*

EXTRA-CURRICULAR ACTIVITIES

- Captain, 'Columbia Raas' Dance Team (Member since Sep 2017), Columbia University *Apr 2020 – Jun 2021*
- Crew Captain, New Student Orientation Program, Columbia University *Aug 2020 – Sep 2020*
- Jam Leader, Columbia Design Jam *May 2020 – Jul 2020*
- Co-President, 'Symposium in India' Student Club, Columbia University *Sep 2018 – May2019*

OTHER

- Languages: Hindi (fluent), Spanish (intermediate)