Andrew Goldberg

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Education

University of California Berkeley 4.0 GPA, Graduate 2026
Electrical Engineering and Computer Science B.S. *Berkeley, CA*
Coursework: Structure and Interpretation of Computer Programs, Designing Information Devices and Systems, Data Structures, Discrete Mathematics and Probability Theory, Linear Algebra, Multivariable Calculus

Experience

Programmer/CAD Design Intern June 2022 – July 2022
Evodyne Robotics *Mountain View, CA*
- Removed Raspberry Pi dependency from robot dog kit saving $60+ per unit by adapting Python code to ESP32.
- Coded new mobile UI with camera support and created documentation for two quadruped robotics kits.
- Optimized CAD model of 5-DOF robot arm to print up to 8 times faster and without supports.
- Designed and manufactured cycloidal drive solution for a stable, durable, 3D printed gear reduction.
- Head 3D printing teacher for 15 student class. Taught gears, joints, and other CAD fundamentals in Fusion360.

Machine Learning @ Berkeley Aug. 2023 – Present
University of California Berkeley *Berkeley, CA*
- Created custom ResNet based ML model, data visualizations, and custom dataset for ClimateHacks competition to use weather data to predict solar panel productivity (currently 1st place).
- Built method to obtain a rubiks cube's state from images. Used mobile SAM, grounding DINO, and classical CV edge detection techniques to extract colors and their positions.
- Attend weekly machine learning paper reading group and speaker sessions, reviewing latest ML research.

Hackathon Director, Outreach Officer Dec. 2020 – July 2023
Bionic Bruins Robotics Club *San Jose, CA*
- Ran two district-wide hackathons with 160 participants. Raised $5000 in corporate sponsorships. Organized venue, prizes, food, and judges. Created CTF activity for participants. Created documentation for knowledge transfer.
- Organized robotics visits to elementary schools reaching 600+ students.
- Designed 3D-printed parts to fix robotics field. Coded and built VEX competition robots with a team.

Projects

AI-Car-Racers | Link | *JavaScript, ML, HTML, CSS*
- A web based, reinforcement/evolutionary learning car racing game using JavaScript canvas. Users draw a track, modify physics, and control training hyperparameters as the machine learning model improves its track time.
- Implemeted neural network, evolutionary mechanics, and collision/intersection detection in JavaScript

Digital Billboard Graduation Cap | Link | *C++, Arduino, ESP32, HTML, CSS*
- Users connect to a website and submit text to be displayed. After admin approval, the text is displayed on an LED matrix mounted on the grad cap in a custom 3D printed case.
- An ESP32 WiFi access point with mDNS hosts a custom front-end and handles input and the LED display.
- Winner in Instructables 3D Print Student Design Contest

3D Print Logger | *Python, SQL, Arduino, C++, Python, REST API, Flask*
- A python script which uses the Octoprint API to log metrics (power consumption, filament usage, print time) about a 3D print in an SQL database. Displays SQL data on a Flask website.

Volunteering | *Communication, Organization, Leadership*
- 1 of 3 awarded by San Jose Councilmember Pam Foley for outstanding volunteer work in San Jose District 9
- Organized team and donated 300+ hand-painted 3D printed decorations to nursing homes and a children's hospital
- Paired 29 middle school students with volunteer highschool teachers. Taught over 100 hours of saxophone lessons.
- Created spirograph and s'more based math lessons and taught to around 115 middle school math club students.

Technical Skills

Languages: Python, Java, C/C++, SQL, JavaScript, HTML/CSS
Libraries: PyTorch, TensorFlow, Pandas, NumPy, Matplotlib, Sklearn, SciPy
Other Skills: Fusion 360, Blender, 3D Printing, Octoprint, Circuits, Robotics, Linux, Raspberry Pi, Arduino