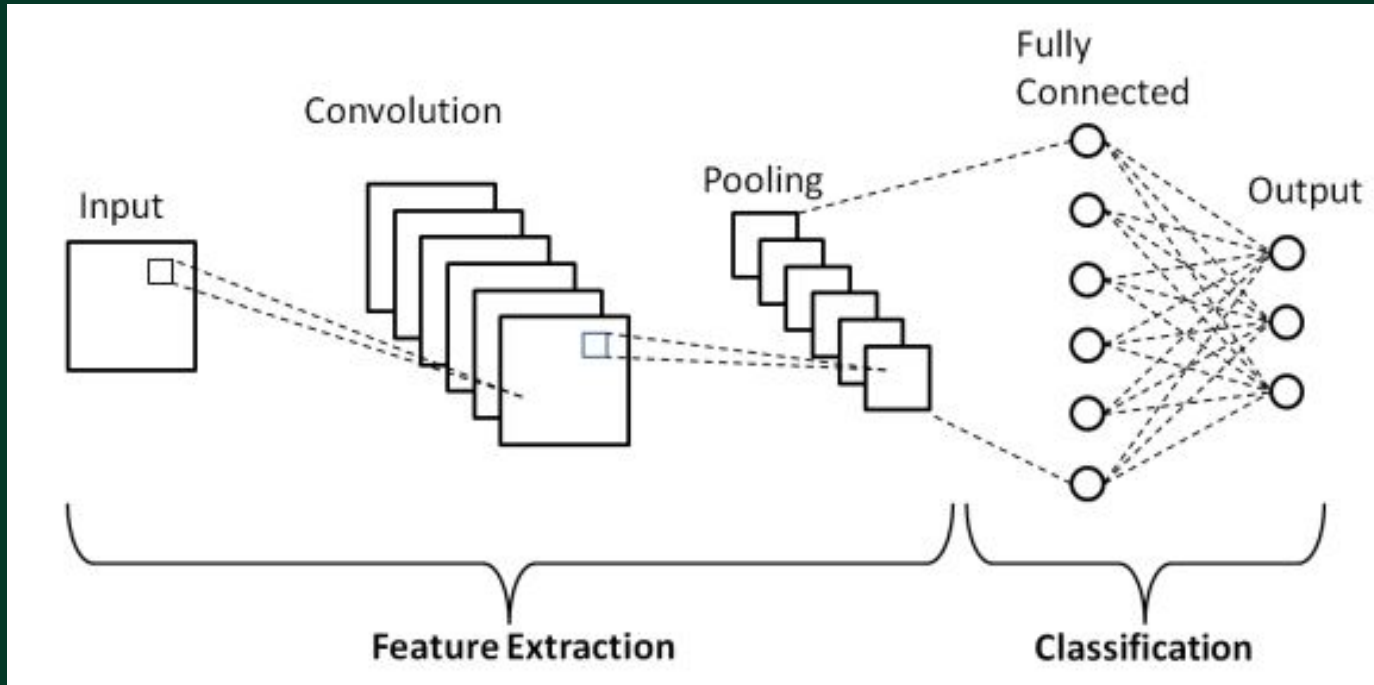# Project A.R.I.S.E.

Sophie Zeng & Grace Yao

AI-Assisted Removal of Invasive Species for Environmental Restoration
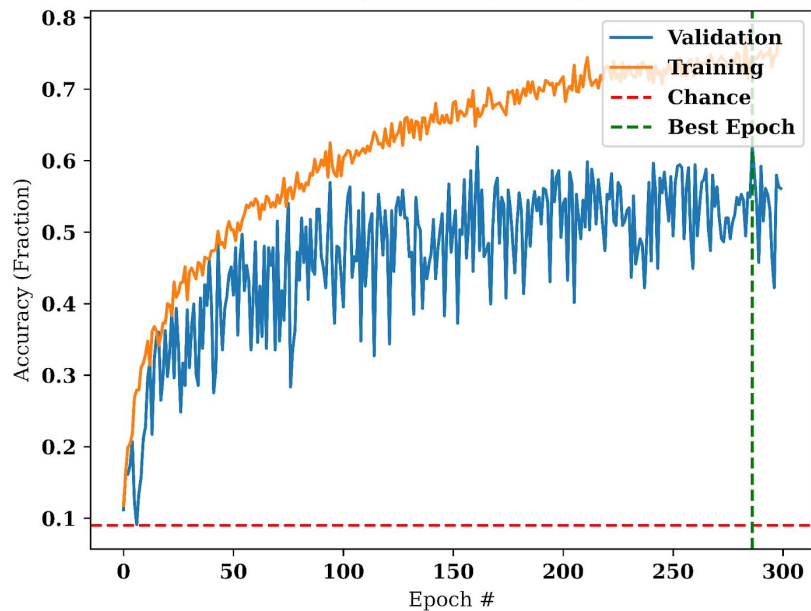
Convolutional Neural Network (CNN) architecture


90%

| TRAIN LOSS	TEST LOSS	TRAIN ACCURACY	BEST TEST ACCURACY	epochs	batch size	learning rate	max pooling size	dropout rate	TOP 2 ACCURACY	TOP 3	TOP 4	TOP 5
2.525829	2.983036	0.761778	0.631470	300	16	0.001	4,4	0.3	0.801242236	0.8861283644	0.917184265	0.9378881988
2.481771	2.963338	0.784000	0.643892	300	16	0.001	4,4	0.3	0.8095238095	0.8923395445	0.9213250518	0.9523809524
2.576550	2.971427	0.740444	0.660455	300	16	0.001	4,4	0.3	0.7971014493	0.8633540373	0.9275362319	0.9440993789
2.610701	2.984417	0.752000	0.656315	300	16	0.001	4,4	0.3	0.7908902692	0.884057971	0.917184265	0.9399585921
1.138393	1.578381	0.720000	0.621118	300	16	0.001	4,4	0.3	0.7743271222	0.8633540373	0.9047619048	0.9192546584
1.03E-04	1.99124	1.0000	0.4741	50	64	0.0001	2,2	none	0.6997929607	0.7784679089	0.83436853	0.8861283644
1.094392	1.492212	0.728000	0.633540	300	16	0.001	4,4	0.3	0.784679089	0.8757763975	0.9275362319	0.9482401656
1.200617	1.744178	0.6783	0.553004	300	16	0.001	4,4	0.3	0.7137809187	0.8286219081	0.8833922261	0.9151943463
86.520218	87.220474	0.317906	0.263251	300	16	0.001	4,4	0.3	0.3109540636	0.4028268551	0.5053003534	0.6307420495

Accuracy (fraction) Vs. Epochs

TRAIN LOSS	TEST LOSS	TRAIN ACCURACY	BEST TEST ACCURACY	epochs	batch size	learning rate	max pooling size	dropout rate	TOP 2 ACCURACY	TOP 3	TOP 4	TOP 5
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Confusion Matrix
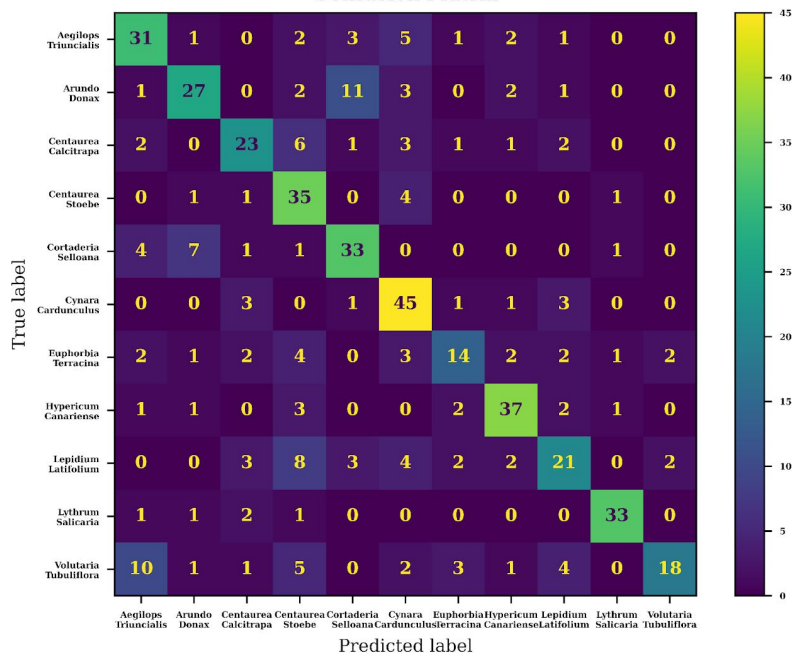
Video Demo
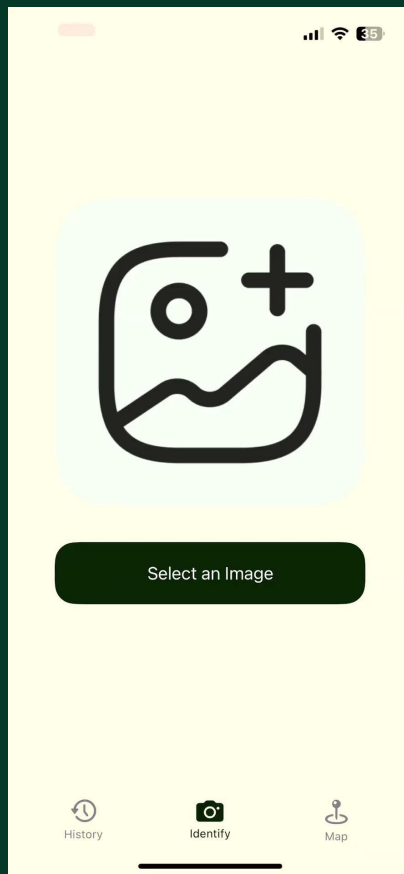
Photos from our various service events!

Educational workshop for kids

Testing our algorithm and removing invasive black mustard in the field!