# This is collection of model histories of all the experiments that i ran with some characteristics shown along side with it corresponding to that specific training run

### 1st history(epoch = 5):

{'loss': [0.5254549384117126, 0.3412989675998688, 0.2487601637840271, 0.1812313199043274, 0.1368768811225891], 'iou\_score': [0.11965442448854446, 0.14698687195777893, 0.1626971960067749, 0.17552980780601501, 0.18463236093521118], 'val\_loss': [0.37975144386291504, 0.2783949375152588, 0.20656761527061462, 0.1613922119140625, 0.13200326263904572], 'val\_iou\_score': [0.13717593252658844, 0.1569286435842514, 0.1707352250814438, 0.17854911088943481, 0.1882665604352951]}

### 2nd history(epoch = 10):

{'loss': [0.7117266654968262, 0.45600977540016174, 0.32547199726104736, 0.2279183566570282, 0.16186082363128662, 0.11996787786483765, 0.11696285754442215, 0.0921688973903656, 0.0718517005443573, 0.05767085403203964], 'iou\_score': [0.09559328854084015, 0.1265251636505127, 0.14856009185314178, 0.16742736101150513, 0.181313157081604, 0.19015181064605713, 0.18565881252288818, 0.19315171241760254, 0.1987294852733612, 0.20289762318134308], 'val\_loss': [0.535325825214386, 0.3988516330718994, 0.2590702772140503, 0.18397140502929688, 0.13768278062343597, 0.09571881592273712, 0.1234917938709259, 0.07880087196826935, 0.06533107906579971, 0.05109025910496712], 'val\_iou\_score': [0.11426077783107758, 0.13529102504253387, 0.16133055090904236, 0.176660418510437, 0.18747836351394653, 0.17860347032546997, 0.19018268585205078, 0.19373475015163422, 0.19897028803825378, 0.20525702834129333]}

### 3rd history(epoch = 20):

{'loss': [0.5231246948242188, 0.29555752873420715, 0.1906273365020752, 0.1472758799791336, 0.11205197125673294, 0.10782746225595474, 0.08973213285207748, 0.0702207162976265, 0.05447293072938919, 0.045201513916254044, 0.03672035038471222, 0.03309774026274681, 0.028841398656368256, 0.026001188904047012, 0.023984219878911972, 0.02635415643453598, 0.026804916560649872, 0.02383970469236374, 0.020823553204536438, 0.01983710378408432, 0.018271274864673615, 0.017161225900053978, 0.01563640683889389, 0.01541261188685894, 0.0139857716858387], 'iou\_score': [0.1243908479809761, 0.16222189366817474, 0.1833956390619278, 0.1921129673719406, 0.19765444099903107, 0.1907443106174469, 0.19514665007591248, 0.200332909822464, 0.2048458606004715, 0.207950621843338, 0.21014545857906342, 0.21085435152053833, 0.21234752237796783, 0.21192960441112518, 0.21221977472305298, 0.20339864492416382, 0.20455610752105713, 0.20718446373939514, 0.20775827765464783, 0.20810995995998383, 0.20792241394519806, 0.20899656414985657, 0.20883379876613617, 0.20895922183990479, 0.20606213808059692], 'val\_loss': [0.3504341244697571, 0.2270856350660324, 0.15799111127853394, 0.12615768611431122, 0.1073581874370575, 0.09883617609739304, 0.07801088690757751, 0.05247480422258377, 0.045154619961977005, 0.03397982940077782, 0.038976382464170456, 0.025591908022761345, 0.023734865710139275, 0.030592909082770348, 0.022325491532683372, 0.025612615048885345, 0.026377787813544273, 0.020990507677197456, 0.03191310167312622, 0.015842529013752937, 0.015667308121919632, 0.026735998690128326, 0.014911118894815445, 0.014886182732880116, 0.01278657466173172], 'val\_iou\_score': [0.1469690501689911, 0.17493127286434174, 0.19046643376350403, 0.19754275679588318, 0.196194589138031, 0.1899973303079605, 0.1984904706478119, 0.20007845759391785, 0.20677940547466278, 0.20857937633991241, 0.20819391310214996, 0.2120230495929718, 0.21219679713249207, 0.21205317974090576, 0.21221648156642914, 0.19799432158470154, 0.20467513799667358, 0.20470266044139862, 0.2034219652414322, 0.20694592595100403, 0.20698517560958862, 0.20529471337795258, 0.20798468589782715, 0.20643728971481323, 0.20589295029640198]}

### 4th history(epoch = 50):

{'loss': [0.43286043405532837, 0.2720092535018921, 0.20550419390201569, 0.16345758736133575, 0.12861192226409912, 0.11693187803030014, 0.11703502386808395, 0.1101461723446846, 0.09524888545274734, 0.08133452385663986, 0.07763978838920593, 0.07429588586091995, 0.06552217900753021, 0.05563415214419365, 0.04448946937918663, 0.0377994179725647, 0.03220848739147186, 0.028843320906162262, 0.026018496602773666, 0.023074179887771606, 0.021483756601810455, 0.019931970164179802, 0.01835424266755581, 0.017356084659695625, 0.015776950865983963, 0.016650449484586716, 0.021920375525951385, 0.023347102105617523, 0.020344719290733337, 0.018535394221544266, 0.017241302877664566, 0.015975872054696083, 0.015211859717965126, 0.014745913445949554, 0.014037104323506355, 0.013343127444386482, 0.012828712351620197, 0.012593723833560944, 0.011909034103155136, 0.011844292283058167, 0.011635417118668556, 0.01096460409462452, 0.01081845909357071, 0.010910299606621265, 0.010522273369133472, 0.010119175538420677, 0.00968517642468214, 0.00988337304443121, 0.009502183645963669, 0.009452028200030327], 'iou\_score': [0.1380644142627716, 0.1628788560628891, 0.1776314377784729, 0.18744289875030518, 0.19564461708068848, 0.19577080011367798, 0.19281889498233795, 0.19239701330661774, 0.19341067969799042, 0.19471125304698944, 0.1946040242910385, 0.19352731108665466, 0.1949586719274521, 0.1985033005475998, 0.2014687955379486, 0.20285485684871674, 0.20450548827648163, 0.20504659414291382, 0.2066250443458557, 0.2061537653207779, 0.20712536573410034, 0.2073480784893036, 0.2081790417432785, 0.207839235663414, 0.20787252485752106, 0.20082062482833862, 0.19586464762687683, 0.1980830729007721, 0.1998003125190735, 0.19976143538951874, 0.20048119127750397, 0.20061273872852325, 0.20064498484134674, 0.2013738751411438, 0.2011544108390808, 0.2011726349592209, 0.20187801122665405, 0.20123229920864105, 0.20211051404476166, 0.2014688104391098, 0.20192614197731018, 0.20226441323757172, 0.2017780840396881, 0.20251692831516266, 0.20190419256687164, 0.20287074148654938, 0.20263808965682983, 0.20259210467338562, 0.20267267525196075, 0.2030162513256073], 'val\_loss': [0.3060072660446167, 0.2395060658454895, 0.1761082261800766, 0.17378093302249908, 0.10429279506206512, 0.111778125166893, 0.10540833324193954, 0.11946316063404083, 0.07873685657978058, 0.07291625440120697, 0.08253438025712967, 0.0778992623090744, 0.05734667181968689, 0.0424986407160759, 0.045263394713401794, 0.034862495958805084, 0.027595985680818558, 0.028429633006453514, 0.030050696805119514, 0.02977176383137703, 0.01606934331357479, 0.017765456810593605, 0.020077552646398544, 0.013626025058329105, 0.019243694841861725, 0.017749212682247162, 0.02026374265551567, 0.019344815984368324, 0.014957351610064507, 0.014733126387000084, 0.026107214391231537, 0.01795090176165104, 0.01644757390022278, 0.01213210728019476, 0.01399934757500887, 0.012668750248849392, 0.013084023259580135, 0.018012898042798042, 0.01058515440672636, 0.010186471976339817, 0.01122604962438345, 0.009914153255522251, 0.010188835673034191, 0.011326152831315994, 0.010078204795718193, 0.014753025025129318, 0.011425738222897053, 0.011663046665489674, 0.02575257048010826, 0.009018166922032833], 'val\_iou\_score': [0.15508875250816345, 0.1738874763250351, 0.1870644986629486, 0.19103974103927612, 0.19934578239917755, 0.19723312556743622, 0.1927209049463272, 0.19034183025360107, 0.1944122016429901, 0.1972360610961914, 0.19195368885993958, 0.19093334674835205, 0.19459809362888336, 0.19902393221855164, 0.19864872097969055, 0.2017960101366043, 0.20471909642219543, 0.20454718172550201, 0.20509852468967438, 0.20350974798202515, 0.20641197264194489, 0.20637358725070953, 0.20681029558181763, 0.20737609267234802, 0.20777243375778198, 0.196681410074234, 0.19398850202560425, 0.19681796431541443, 0.19713085889816284, 0.1981908679008484, 0.1972302496433258, 0.19943498075008392, 0.19964829087257385, 0.19996923208236694, 0.20052969455718994, 0.20154990255832672, 0.19843357801437378, 0.19997064769268036, 0.2005576491355896, 0.20230022072792053, 0.20011763274669647, 0.20034167170524597, 0.2017102837562561, 0.2020622044801712, 0.20082782208919525, 0.2007213830947876, 0.20169804990291595, 0.20173420011997223, 0.19886332750320435, 0.20218771696090698]}

### 5th history (Epoch = 50 , learning rate = 1e-5):

{'loss': [0.5102024078369141, 0.3808255195617676, 0.342494934797287, 0.311972051858902, 0.2863192558288574, 0.2621672451496124, 0.24492156505584717, 0.2295733243227005, 0.21743345260620117, 0.20175980031490326, 0.19247595965862274, 0.18765093386173248, 0.18088099360466003, 0.1699109524488449, 0.16155090928077698, 0.15344645082950592, 0.1452411413192749, 0.13695180416107178, 0.12918643653392792, 0.12343230843544006, 0.11427398025989532, 0.11209619045257568, 0.10334597527980804, 0.09763988107442856, 0.09234745800495148, 0.08627307415008545, 0.08234837651252747, 0.07715348154306412, 0.07279873639345169, 0.06969960033893585, 0.06629111617803574, 0.06323347985744476, 0.06017577648162842, 0.057994455099105835, 0.05530703812837601, 0.051972631365060806, 0.050066690891981125, 0.04775450378656387, 0.04592465981841087, 0.0439772754907608, 0.04198842868208885, 0.04081432521343231, 0.03984374925494194, 0.03676902502775192, 0.03610169515013695, 0.035311710089445114, 0.03384444862604141, 0.0336664617061615, 0.03249666467308998, 0.03101402148604393], 'iou\_score': [0.12166621536016464, 0.1407739669084549, 0.14636902511119843, 0.1510908305644989, 0.1559946984052658, 0.16013501584529877, 0.1633060872554779, 0.1664399951696396, 0.16857005655765533, 0.17108242213726044, 0.17263959348201752, 0.17204329371452332, 0.1721697896718979, 0.173943892121315, 0.1758764088153839, 0.1775413453578949, 0.1793416142463684, 0.1805041879415512, 0.1822650134563446, 0.18323563039302826, 0.18447186052799225, 0.1860828548669815, 0.1871851086616516, 0.18871167302131653, 0.18982377648353577, 0.19103163480758667, 0.19204144179821014, 0.19331081211566925, 0.1942155361175537, 0.1954493671655655, 0.19743646681308746, 0.19890424609184265, 0.20067401230335236, 0.20181098580360413, 0.20295237004756927, 0.20278602838516235, 0.2037133425474167, 0.20417049527168274, 0.20449784398078918, 0.20522348582744598, 0.20529404282569885, 0.20589317381381989, 0.20599313080310822, 0.20652642846107483, 0.20690487325191498, 0.20662611722946167, 0.2068103849887848, 0.20695731043815613, 0.2073846310377121, 0.2074553519487381], 'val\_loss': [0.39725029468536377, 0.369651734828949, 0.33915477991104126, 0.2991711497306824, 0.2752697765827179, 0.2532455027103424, 0.23558400571346283, 0.22332285344600677, 0.20665243268013, 0.19314906001091003, 0.19083228707313538, 0.1853574514389038, 0.17151376605033875, 0.1655317097902298, 0.15427003800868988, 0.14949224889278412, 0.14130164682865143, 0.13011261820793152, 0.12491822987794876, 0.11641743034124374, 0.11111120879650116, 0.1046392023563385, 0.09700681269168854, 0.09426221996545792, 0.08438940346240997, 0.07954064011573792, 0.07568871229887009, 0.0742909386754036, 0.07055303454399109, 0.06849515438079834, 0.06429896503686905, 0.06515564769506454, 0.05789819359779358, 0.0531732477247715, 0.0531032420694828, 0.05392197519540787, 0.04666830971837044, 0.044355686753988266, 0.041502635926008224, 0.041317738592624664, 0.04078826680779457, 0.03807447478175163, 0.03637712821364403, 0.0346815288066864, 0.03575143218040466, 0.034289050847291946, 0.03085460141301155, 0.02938637137413025, 0.02843034453690052, 0.028198935091495514], 'val\_iou\_score': [0.13821634650230408, 0.14384981989860535, 0.14728198945522308, 0.15388648211956024, 0.15821336209774017, 0.16279186308383942, 0.1651902049779892, 0.16778111457824707, 0.17044216394424438, 0.17285959422588348, 0.1738942712545395, 0.17178276181221008, 0.17467272281646729, 0.1749056726694107, 0.1778213530778885, 0.17967171967029572, 0.1799134463071823, 0.18201421201229095, 0.18332384526729584, 0.18499749898910522, 0.185831218957901, 0.1862829029560089, 0.18756546080112457, 0.18865129351615906, 0.19108611345291138, 0.19245123863220215, 0.1924789398908615, 0.1933971643447876, 0.19515734910964966, 0.19655124843120575, 0.19930429756641388, 0.19956862926483154, 0.20107555389404297, 0.2026698887348175, 0.20290528237819672, 0.20376071333885193, 0.20390735566616058, 0.2046898454427719, 0.2058342546224594, 0.2060648798942566, 0.20620912313461304, 0.20519010722637177, 0.20734098553657532, 0.20711630582809448, 0.20721940696239471, 0.2070866823196411, 0.20758609473705292, 0.20715589821338654, 0.2081596553325653, 0.20833563804626465]}

### 6th history lr = 1e-4 batch\_size = 8 epochs = 30:

{'loss': [0.22441129386425018, 0.08437145501375198, 0.04810270294547081, 0.036801546812057495, 0.02931506745517254, 0.024750476703047752, 0.02008216641843319, 0.01715734414756298, 0.015079359523952007, 0.013089154846966267, 0.0116874473169446, 0.01129483338445425, 0.009966034442186356, 0.008590109646320343, 0.008808339945971966, 0.008795803412795067, 0.007681146264076233, 0.006718507036566734, 0.006955177057534456, 0.00918428786098957, 0.007796969264745712, 0.007146245799958706, 0.006463531404733658, 0.006052994169294834, 0.00553742703050375, 0.005131763871759176, 0.004615921061486006, 0.0041485922411084175, 0.006298393476754427, 0.007640054915100336], 'iou\_score': [0.1711062639951706, 0.20042046904563904, 0.20869573950767517, 0.20480075478553772, 0.19937124848365784, 0.19781453907489777, 0.199489563703537, 0.20006175339221954, 0.20025542378425598, 0.20069590210914612, 0.1962157040834427, 0.19613897800445557, 0.19687584042549133, 0.1964382827281952, 0.19226773083209991, 0.19329948723316193, 0.19365264475345612, 0.19384226202964783, 0.1911192089319229, 0.1903240978717804, 0.1913575679063797, 0.1913963407278061, 0.1917920559644699, 0.19196674227714539, 0.19218562543392181, 0.1925208419561386, 0.19259092211723328, 0.19274762272834778, 0.19077016413211823, 0.19032232463359833], 'val\_loss': [0.11356732249259949, 0.05444024130702019, 0.03845363110303879, 0.02629009261727333, 0.024184897541999817, 0.025789812207221985, 0.01657487452030182, 0.016436666250228882, 0.010876035317778587, 0.015326960943639278, 0.012228039093315601, 0.009516128338873386, 0.008705141954123974, 0.008383819833397865, 0.00807191152125597, 0.007130199111998081, 0.013432868756353855, 0.007950427941977978, 0.007571718189865351, 0.006958231795579195, 0.00678932573646307, 0.006166970357298851, 0.005966098513454199, 0.006146893836557865, 0.005368188954889774, 0.004553425591439009, 0.00415580440312624, 0.003615193534642458, 0.009651674889028072, 0.006191141437739134], 'val\_iou\_score': [0.19202178716659546, 0.20783935487270355, 0.2052764892578125, 0.20088033378124237, 0.19784602522850037, 0.19727027416229248, 0.20012322068214417, 0.19889184832572937, 0.19983185827732086, 0.19848275184631348, 0.19392573833465576, 0.19614653289318085, 0.1960635632276535, 0.19380976259708405, 0.19161847233772278, 0.19269603490829468, 0.19114503264427185, 0.19315876066684723, 0.1890287697315216, 0.19023527204990387, 0.19093818962574005, 0.19072438776493073, 0.19157977402210236, 0.19194094836711884, 0.19208145141601562, 0.1920149326324463, 0.1920062005519867, 0.1920596957206726, 0.18822459876537323, 0.19026590883731842]}

### 7th history lr = 7e-4 batch\_size = 4 epochs = 30(with early stopped at 13th epoch,failded to increase val\_iou after 13 epochs):

{'loss': [0.08186221867799759, 0.02125968225300312, 0.018100792542099953, 0.14613975584506989, 0.14829495549201965, 0.13139840960502625, 0.1193615049123764, 0.10924960672855377, 0.10075375437736511, 0.09353817999362946, 0.08699561655521393, 0.08135757595300674, 0.07633999735116959], 'iou\_score': [0.19674725830554962, 0.2045295089483261, 0.2027662992477417, 0.16953948140144348, 0.1662207990884781, 0.16958744823932648, 0.1719551682472229, 0.17405007779598236, 0.1758207231760025, 0.17733807861804962, 0.17868009209632874, 0.17987126111984253, 0.18094168603420258], 'val\_loss': [0.021308284252882004, 0.012292802333831787, 0.010381177999079227, 0.1743612289428711, 0.14683492481708527, 0.12148582190275192, 0.11423883587121964, 0.11329975724220276, 0.09572690725326538, 0.09188910573720932, 0.07185018807649612, 0.08710998296737671, 0.08491721004247665], 'val\_iou\_score': [0.19325916469097137, 0.19800803065299988, 0.1959214061498642, 0.15824702382087708, 0.16435961425304413, 0.17032311856746674, 0.17307724058628082, 0.17343758046627045, 0.1756078153848648, 0.1777110993862152, 0.18039003014564514, 0.17996156215667725, 0.17772965133190155]}

### 8th history lr = 7e-4 batch\_size = 16 epochs = 5:

{'loss': [0.07765202224254608, 0.04012763872742653, 0.02456658147275448, 0.4974954426288605, 0.3394964039325714], 'iou\_score': [0.21540233492851257, 0.21004462242126465, 0.20592689514160156, 0.10284782201051712, 0.18557944893836975], 'f1-score': [0.23038724064826965, 0.2278778851032257, 0.22548066079616547, 0.12334077060222626, 0.21213017404079437], 'val\_loss': [0.2353668510913849, 0.08914081752300262, 0.13925518095493317, 0.44899982213974, 0.2575310170650482], 'val\_iou\_score': [0.1883765012025833, 0.19088131189346313, 0.19058242440223694, 0.14998742938041687, 0.18947358429431915], 'val\_f1-score': [0.21465866267681122, 0.21632610261440277, 0.21611249446868896, 0.18721459805965424, 0.2154756337404251], 'lr': [0.0007, 0.0007, 0.0007, 0.0007, 0.0007]}

## from here tranfer learning technique was implemented and tremendous performance increase was attained

### 9th history lr = 1e-4 batch\_size = 16 epochs = 5(H = 480, W = 480 instead of H,W = 256):

{'loss': [0.25536635518074036, 0.04437649995088577, 0.03212974593043327, 0.02850687876343727, 0.018274173140525818], 'iou\_score': [0.36826464533805847, 0.7057791948318481, 0.6297565698623657, 0.5204053521156311, 0.5541524887084961], 'f1-score': [0.3827938735485077, 0.7152298092842102, 0.649531364440918, 0.5456835627555847, 0.5792655944824219], 'val\_loss': [0.0813726857304573, 0.032043855637311935, 0.036784738302230835, 0.019282961264252663, 0.023523643612861633], 'val\_iou\_score': [0.4210038185119629, 0.7208210229873657, 0.6471740007400513, 0.44030866026878357, 0.6841242909431458], 'val\_f1-score': [0.42846226692199707, 0.7308229804039001, 0.6729212403297424, 0.46600133180618286, 0.7098129987716675], 'lr': [1e-04, 1e-04, 1e-04, 1e-04, 1e-04]}

### 10th history lr = 1e-4 batch\_size = 16 epochs = 30 but stopped after 8 epochs (H = 480, W = 480 instead of H,W = 256), epsilon=1e-8, decay=1e-6 :

{'loss': [0.23851731419563293, 0.04979284852743149, 0.028097860515117645, 0.01984509453177452, 0.01931244693696499, 0.01908903941512108, 0.01335589773952961, 0.011098015122115612], 'iou\_score': [0.3502723276615143, 0.942891001701355, 0.9778903126716614, 0.9813889861106873, 0.8599538207054138, 0.7898415327072144, 0.7391858100891113, 0.8353567719459534], 'f1-score': [0.3660469055175781, 0.9557108879089355, 0.9880200028419495, 0.9901788830757141, 0.8827288150787354, 0.8154869675636292, 0.7648126482963562, 0.861030101776123], 'val\_loss': [0.09513457119464874, 0.03804868832230568, 0.029048174619674683, 0.013090172782540321, 0.028353895992040634, 0.013774966821074486, 0.011165433563292027, 0.010544698685407639], 'val\_iou\_score': [0.8325262665748596, 0.9403762817382812, 0.9411243796348572, 0.941012442111969, 0.8067363500595093, 0.6962046027183533, 0.8906941413879395, 0.8108275532722473], 'val\_f1-score': [0.8401544094085693, 0.9660575985908508, 0.9665541648864746, 0.966468334197998, 0.8325780034065247, 0.7220103740692139, 0.9165480136871338, 0.8366550803184509], 'lr': [1e-04, 1e-04, 1e-04, 1e-04, 1e-04, 1e-04, 1e-04, 1e-05]}

### 11th history lr = 1e-5 batch\_size = 16 epochs = 30 but stopped after 27 epochs (H = 480, W = 480 instead of H,W = 256), epsilon=1e-8, decay=1e-6 :

{'loss': [0.8636157512664795, 0.5200220942497253, 0.3703117370605469, 0.27520492672920227, 0.2126648724079132, 0.16758722066879272, 0.13606050610542297, 0.12108047306537628, 0.11918606609106064, 0.10031867027282715, 0.08689174056053162, 0.08248075842857361, 0.07183043658733368, 0.06233608350157738, 0.054739098995923996, 0.04750872403383255, 0.04095785319805145, 0.03540455549955368, 0.03087575174868107, 0.027014287188649178, 0.024023957550525665, 0.021178696304559708, 0.01915539801120758, 0.017731769010424614, 0.020218390971422195, 0.018970998004078865, 0.01683988980948925], 'iou\_score': [0.05949559062719345, 0.15820351243019104, 0.222634419798851, 0.2358514666557312, 0.23852922022342682, 0.23959915339946747, 0.24023430049419403, 0.2433292716741562, 0.3224536180496216, 0.430336594581604, 0.46740859746932983, 0.49706101417541504, 0.5005703568458557, 0.5740548372268677, 0.7122536301612854, 0.8050721883773804, 0.8934906721115112, 0.9312769770622253, 0.9613186717033386, 0.966772735118866, 0.9805991649627686, 0.9802860021591187, 0.979714572429657, 0.9687208533287048, 0.8608725666999817, 0.9369176626205444, 0.9394068717956543], 'f1-score': [0.09138340502977371, 0.19163082540035248, 0.23535382747650146, 0.24268490076065063, 0.24410730600357056, 0.24466928839683533, 0.24500177800655365, 0.24784070253372192, 0.3270989954471588, 0.43483996391296387, 0.4720696210861206, 0.5024871230125427, 0.5057849287986755, 0.5791651010513306, 0.7174199819564819, 0.8101970553398132, 0.8987162113189697, 0.9368028044700623, 0.9671791791915894, 0.9732019901275635, 0.9875144958496094, 0.9878214001655579, 0.9877490401268005, 0.9789468050003052, 0.8825709819793701, 0.9625535011291504, 0.9650598168373108], 'val\_loss': [0.6398588418960571, 0.42101866006851196, 0.3186495900154114, 0.2292756587266922, 0.1791539490222931, 0.1445494145154953, 0.1246056854724884, 0.11849658191204071, 0.11012744903564453, 0.09340988099575043, 0.08058678358793259, 0.07328937202692032, 0.06615941971540451, 0.057678017765283585, 0.054042916744947433, 0.04342668503522873, 0.03899380937218666, 0.030416980385780334, 0.029261121526360512, 0.025874800980091095, 0.02172091230750084, 0.019237197935581207, 0.017424173653125763, 0.019484125077724457, 0.018989136442542076, 0.01788090355694294, 0.016667935997247696], 'val\_iou\_score': [0.11151456087827682, 0.20963385701179504, 0.230991393327713, 0.23695772886276245, 0.23787859082221985, 0.26025718450546265, 0.242630273103714, 0.2522260546684265, 0.390399694442749, 0.4249049127101898, 0.47929272055625916, 0.4951736629009247, 0.5158281922340393, 0.6925669312477112, 0.6843937635421753, 0.7958791255950928, 0.822160542011261, 0.9219556450843811, 0.8990094661712646, 0.946975827217102, 0.9818085432052612, 0.9829071760177612, 0.9804774522781372, 0.9622408151626587, 0.9316645264625549, 0.9400121569633484, 0.9399330019950867], 'val\_f1-score': [0.1537923663854599, 0.2279573380947113, 0.2400800585746765, 0.24328169226646423, 0.24376936256885529, 0.26524749398231506, 0.24723097681999207, 0.25713303685188293, 0.39489278197288513, 0.42955732345581055, 0.4843918979167938, 0.500516414642334, 0.5210933089256287, 0.6975942254066467, 0.6894075274467468, 0.8014758229255676, 0.8279229998588562, 0.9280052185058594, 0.9052563309669495, 0.9537927508354187, 0.9895811676979065, 0.9911239147186279, 0.9888719916343689, 0.9795198440551758, 0.9567912220954895, 0.9658195376396179, 0.9657825231552124], 'lr': [1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-06]}

### 12th history lr = 1e-5 batch\_size = 16 epochs = 30 but stopped after 20 epochs (H = 480, W = 480 instead of H,W = 256), epsilon=1e-8, decay=1e-6 :

{'loss': [1.10402512550354, 0.6968660354614258, 0.4829825162887573, 0.34657353162765503, 0.245592400431633, 0.17345145344734192, 0.12884974479675293, 0.10497108846902847, 0.09088542312383652, 0.07282628118991852, 0.05911711975932121, 0.04951058328151703, 0.04795759171247482, 0.04971630126237869, 0.043796975165605545, 0.037239477038383484, 0.03019285760819912, 0.02499614655971527, 0.02083481289446354, 0.01871059462428093], 'iou\_score': [0.00034596610930748284, 0.056064456701278687, 0.1592652052640915, 0.2254491150379181, 0.23574529588222504, 0.27487096190452576, 0.47873830795288086, 0.6107555627822876, 0.7093473672866821, 0.7209895253181458, 0.738129198551178, 0.7381952404975891, 0.7483747601509094, 0.8894405961036682, 0.9337852597236633, 0.9400963187217712, 0.9403308033943176, 0.9406468868255615, 0.9393938779830933, 0.9402631521224976], 'f1-score': [0.0006876197876408696, 0.08454328775405884, 0.1925888955593109, 0.2369854748249054, 0.2426365315914154, 0.28046420216560364, 0.483854740858078, 0.6157022714614868, 0.7139384746551514, 0.7256470918655396, 0.742922306060791, 0.7436844706535339, 0.7613065838813782, 0.9148187041282654, 0.9594293832778931, 0.9656959176063538, 0.9660178422927856, 0.9662115573883057, 0.9650560617446899, 0.9659679532051086], 'val\_loss': [0.9167906045913696, 0.6057925820350647, 0.4347604215145111, 0.29967689514160156, 0.19758346676826477, 0.16538557410240173, 0.11606411635875702, 0.10580872744321823, 0.08510822802782059, 0.07512935250997543, 0.054352596402168274, 0.042300403118133545, 0.051481302827596664, 0.04772331193089485, 0.040585555136203766, 0.034711532294750214, 0.03409281745553017, 0.0225748922675848, 0.01897892914712429, 0.01874903216958046], 'val\_iou\_score': [0.00015642802463844419, 0.10603293776512146, 0.20620004832744598, 0.2552530765533447, 0.37888556718826294, 0.5332543253898621, 0.6022454500198364, 0.6518527865409851, 0.6763817071914673, 0.7069272994995117, 0.6803513169288635, 0.724108099937439, 0.7794564962387085, 0.9240010380744934, 0.9402820467948914, 0.9401692152023315, 0.9400290846824646, 0.9401673078536987, 0.9401614665985107, 0.9401830434799194], 'val\_f1-score': [0.00031265418510884047, 0.148043692111969, 0.2259034961462021, 0.26355311274528503, 0.3849530816078186, 0.5389978885650635, 0.6073459386825562, 0.6567471623420715, 0.6813026070594788, 0.7119409441947937, 0.6853393316268921, 0.7306941747665405, 0.8047877550125122, 0.9496763944625854, 0.9659754633903503, 0.9659102559089661, 0.9658215045928955, 0.9659123420715332, 0.965911865234375, 0.9659134149551392], 'lr': [1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-05, 1e-06]}