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In[202]:=
(* Temporal Color Changes in a Stack
of Images Containing Randomly Generated Colors *)
(* Copyright May1, 2006, Doug Youvan, www.youvan.com & www.pseudocolor.com *)

(* Initialize *)

numtimes = 4; numchannels = 3; width = 320; height = 240;
numpoints = numtimes * numchannels * width * height;

(* Make random one dimensional list with three
significant places between zero and one; length numpoints *)

rs = Table[Random[Real, {0, 1}], numchannels], {i, 1, numpoints}];

(* Partition out: numchannels, width, height *)

partpix = Partition[Partition[Partition[rs, numchannels], width], height];
rs = .

(* Segregate four random color images for display only;
partpix dimesnions are {4,240,320,3} *)

timeonergb = partpix[[1, All, All, All]];
Show[Graphics[RasterArray[Apply[RGBColor, timeonergb, {2}]]],
ImageSize -> {640, 480}];
timeonergb = . (* expunged *)

timetworgb = partpix[[2, All, All, {1, 2, 3}]];
Show[Graphics[RasterArray[Apply[RGBColor, timetworgb, {2}]]],
ImageSize -> {640, 480}];
timetworgb = .

timethreergb = partpix[[3, All, All, {1, 2, 3}]];
Show[Graphics[RasterArray[Apply[RGBColor, timethreergb, {2}]]],
ImageSize -> {640, 480}];
timethreergb = .

timefourrgb = partpix[[4, All, All, {1, 2, 3}]];
Show[Graphics[RasterArray[Apply[RGBColor, timefourrgb, {2}]]],
ImageSize -> {640, 480}];
timefourrgb = .

(* Make an all black background, indexed by width and height *)

numpixels = width * height * 3;
colorover = Table[{h, w, c}, {h, 1, height}, {w, 1, width}, {rgb, 1, 3}];
colorover[[All, All, All]] = 0.;

(* Pick out pixels that get increasingly bluer in the blue channel over time,
greener in the green, and redder in the red, respectively ;
uses partpix, created before images were expunged *)

For[c = 1, c <= numchannels, c++, For[w = 1, w < width, w++, For[h = 1, h < height, h++,

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If[(partpix[[4, h, w, c]] > partpix[[3, h, w, c]] >
  partpix[[2, h, w, c]] > partpix[[1, h, w, c]]),
  colorover[[h, w, c]] = 1 ] ]];

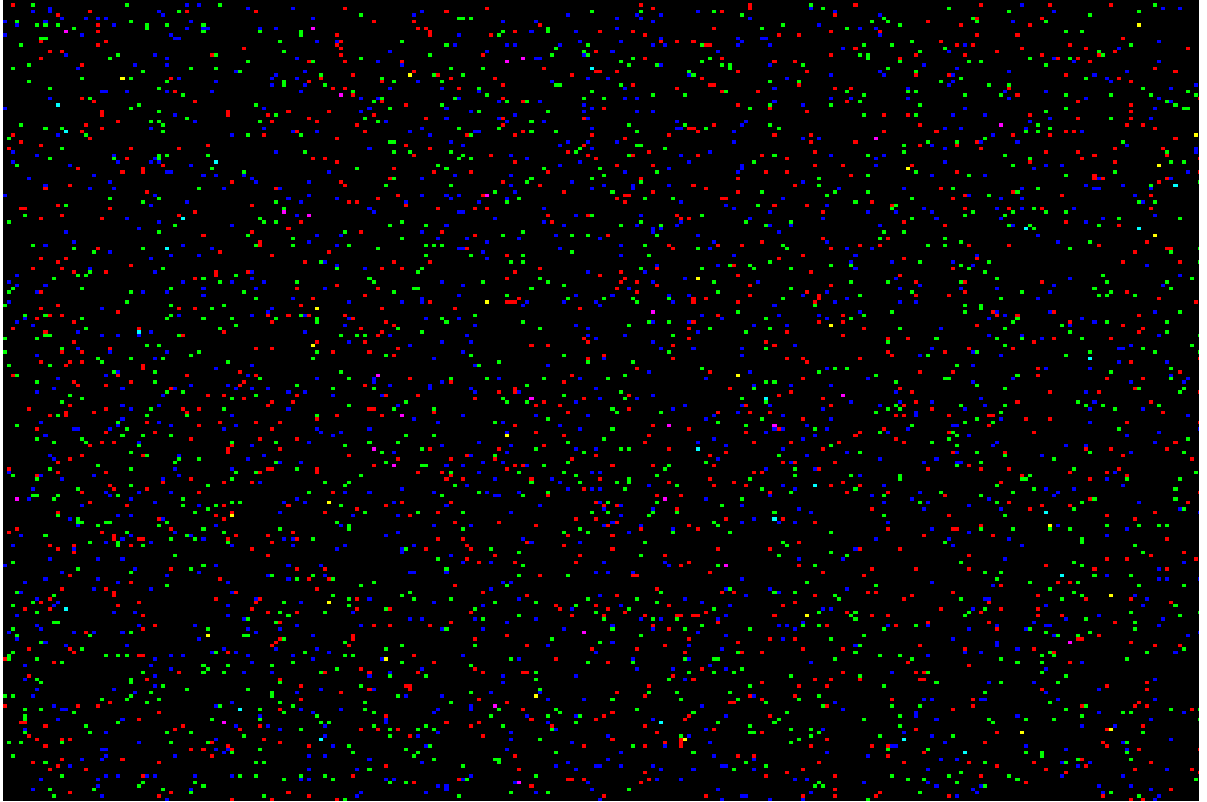
Show[Graphics[RasterArray[Apply[RGBColor, colorover, {2}]]], ImageSize -> {640, 480}]
colorover = .
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Out[223]=  
- Graphics -
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