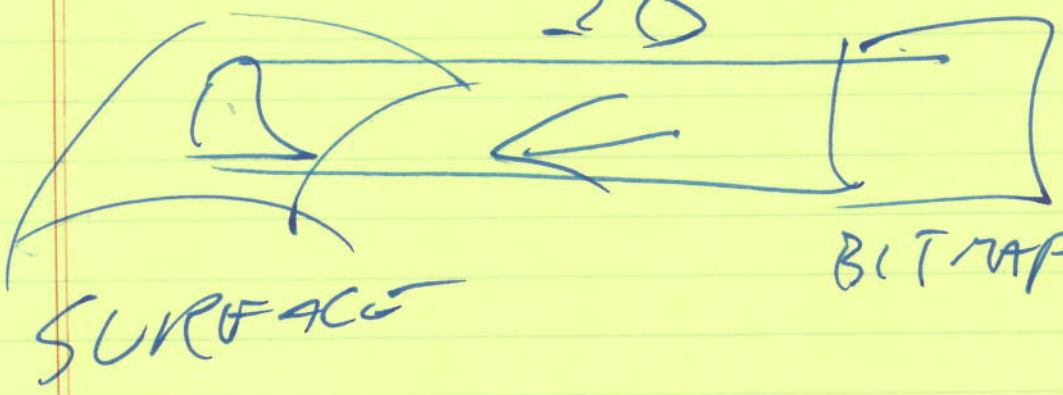
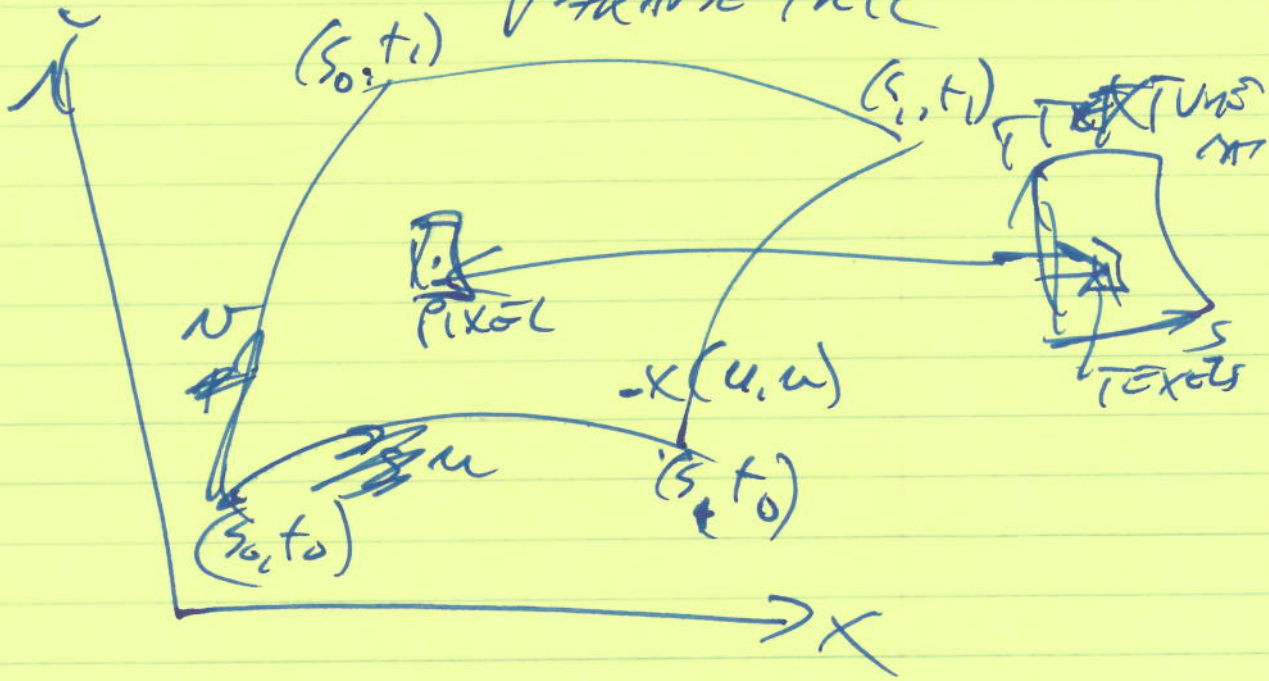
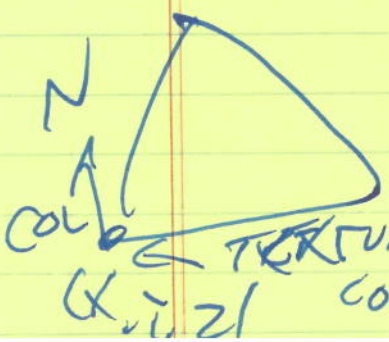
ECSE-4750 4/29/12 p1

TEXTURE MAPPING



3D - WOOD, MARBLE.



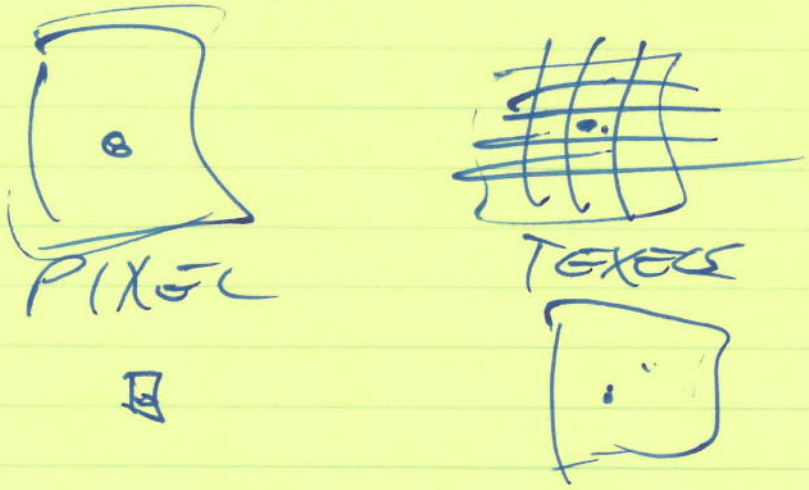


COMBINE TEXTURE WITH COLOR/LIGHT

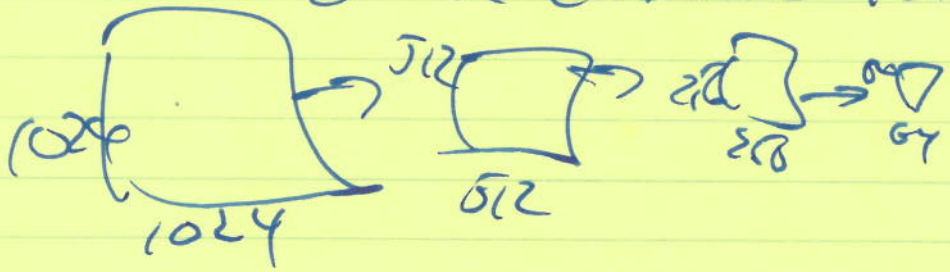
COMPLICATIONS

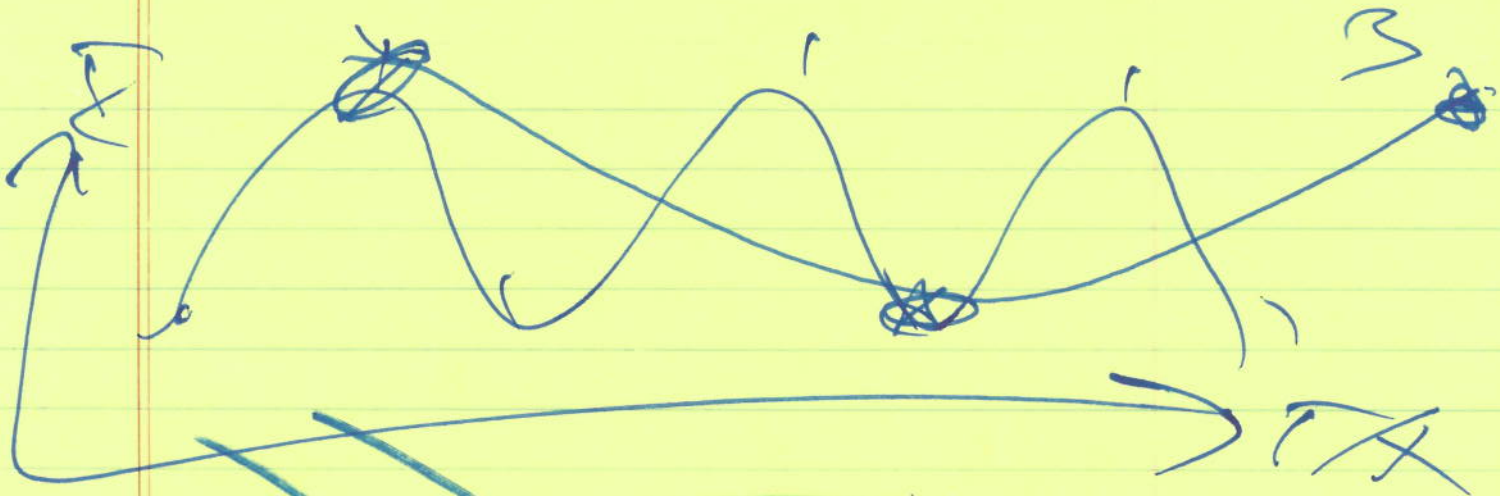
1. SPEED → GPU.

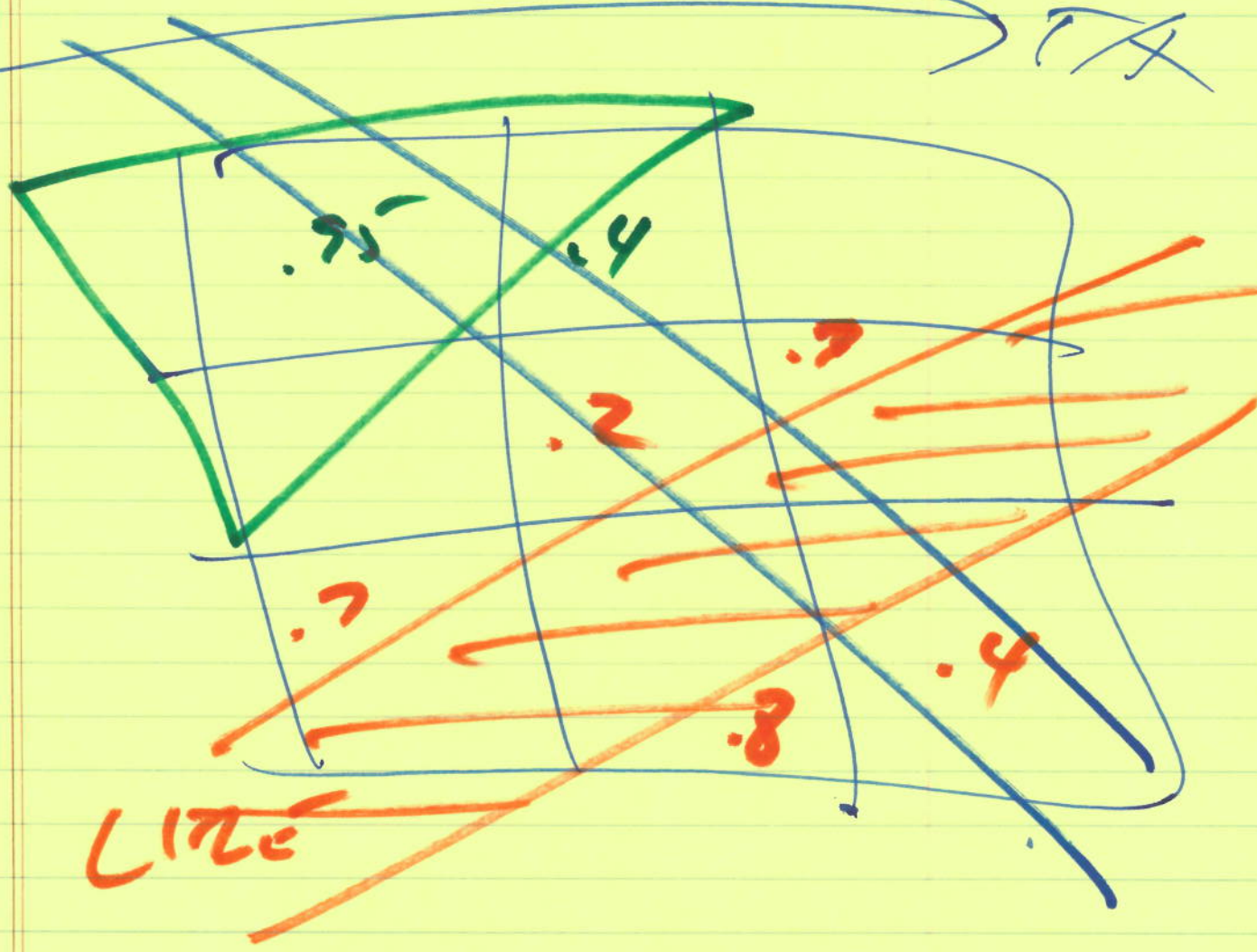
2. TEXEL SIZE ≠ PIXEL SIZE.



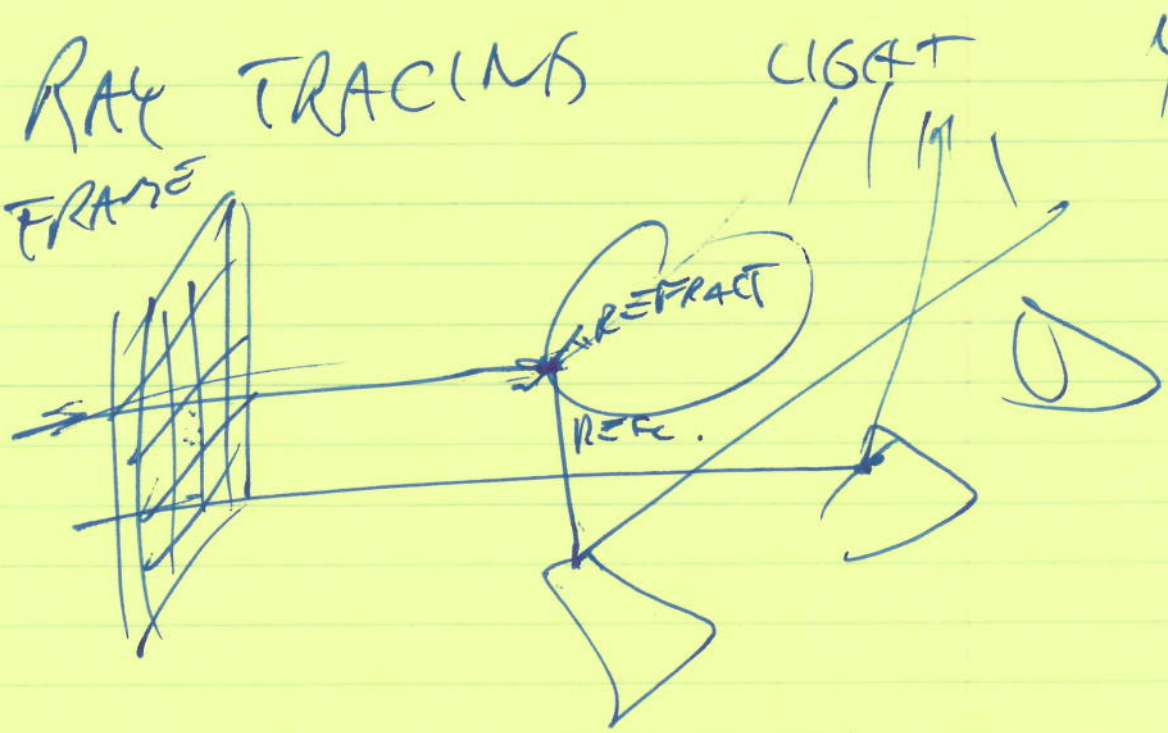
MIPMAP - BUILD A STACK OF EVER COARSER TEXTURE MAPS



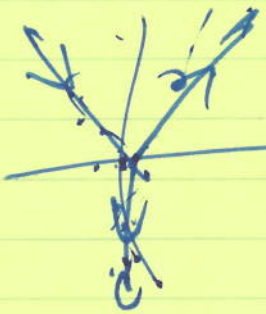



.95
.4
.7
.2
.7
.4
.8
LIRE

RAY TRACING



CAM



n. INDEX OF REFRACT
WATER 1.3
GLASS 1.5

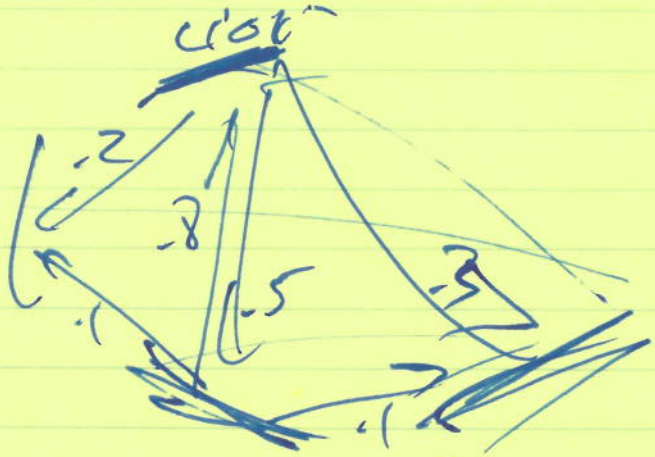
SNELL ANGLE
FRESNELL - AMOUNT

XMITFRACT $\left(\frac{n-1}{n+1}\right)^2$

ANTI-ALIAS - STOCHASTIC
~~MULTI~~ - SUBPIXEL AVER.

RADIOSITY

- EVERY OBJECT ILLUMINATES (SOMEWHAT) MOST EVERY OTHER OBJECT



FORM FACTORS A_{ij} = FRACT OF LIGHT FROM i HITTING j.

$B_i = E_i + \sum B_j A_{j,i}$ SOLVE FOR B_i

? BRIGHTNESS OF i

(IGNORING ALBEDO ETC.

COMBINE RAY TRACE + RADIOSITY

- - - + - -

PROBLEM

GIVEN LOTS OF OBJECTS.
- WHAT ONES DO WE SEE?
- SOME WILL HIDE OTHERS -

PAINTERS

CAM →

AIR #2 — 3

AIRPLANE — 2

MOUNTAIN — 1