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**CSE585/EE555: Digital Image Processing II**

**Spring 2020**

**Exam #2 – Answer Sheet**

**Given**: 1:30PM – 3:15PM, Thursday, 30 April 2020

|  |  |
| --- | --- |
|  | 1. 22 pts |
|  | 1. 18 pts |
|  | 1. 25 pts |
|  | 1. 17 pts |
|  | 1. 18 pts |
|  | Total 100 points |

1. (22 points) Answer T (true) or F (false). For example, a. \_\_T\_\_
2. \_\_F\_\_\_
3. \_\_F\_\_\_
4. \_\_T\_\_\_
5. \_\_T\_\_\_
6. \_\_F\_\_\_
7. \_\_T\_\_\_
8. \_\_F\_\_\_
9. \_\_T\_\_\_
10. \_\_T\_\_\_
11. \_\_F\_\_
12. \_\_T\_\_\_
13. (18 pts) Texture analysis.
14. Fill in table below (type numbers in blanks)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| i | 0 | 1 | 2 | 3 |
| p’1(i,d) | 0 | 1/3 | 2/3 | 0 |
| p’ 2(i,d) | 1/3 | 2/3 | 0 | 0 |

b. CON(I1) = \_\_\_\_\_\_\_\_3\_\_\_\_\_\_

CON(I2) = \_\_\_\_\_\_\_\_2/3\_\_\_\_\_\_

Texture with larger gray-level changes? \_\_\_\_\_1\_\_\_\_

1. (25 pts) Gabor filters. (Okay to leave answers as fractions!)
2. σy = \_\_\_\_\_\_10\_\_\_\_\_\_

U = \_\_\_\_\_\_\_0\_\_\_\_\_\_

V = \_\_\_\_\_\_\_16\_\_\_\_\_\_

ϕ = \_\_\_\_\_\_0\_\_\_\_\_\_\_

1. F *= \_\_\_\_\_1/32\_\_\_\_\_\_*
2. Texture passed = \_\_\_t2\_\_\_

Why passed? \_\_\_\_\_\_Because t2, U=1 and V = 15 close the center of H\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. min *x*  = \_\_\_\_60\_\_\_\_\_\_\_ max *x*  = \_\_\_\_\_451\_\_\_\_\_\_
2. (17 pts) Order-Statistics filtering – Okay to leave answers as fractions!
3. Prob{ x > ½) = \_\_\_\_\_\_\_3/4\_\_\_\_\_\_\_

Prob{X(1) > ½) = \_\_\_\_\_\_\_\_27/64\_\_\_\_\_\_

1. Answer:

can tell nothing. Because each pixel are independent

1. *f(1)(x)* =3\*f(x)\*[1-F(X)]^2 if 0 <= x<=1
2. (18 pts) Fractals and IFS.
3. Number of segments = \_\_\_6\_\_\_\_\_

Length = \_\_\_0.2\_\_\_\_\_

Is replacement rule unique? \_\_\_No\_\_\_\_\_

1. wo1 (p1) = [\_12\_,\_12\_]T wo2 (p1) = [\_9\_,\_9\_]T

wo1 (p2) = [\_24\_,\_24\_]T wo2 (p2) = [\_18\_,\_18\_]T

1. Contractive transformation? \_\_\_Yes\_\_\_\_

c = \_\_\_\_3/4\_\_\_\_\_