

Question 1: Image Extraction at Best Quality

Qn.1A, if you used the supplied replay software:

please save and submit your results using the filename:

Q1A_ReplayDescribed-1_ID18.jpg

Q1A_ReplayDescribed-2_ID18.jpg

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, and (ii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video file with the provided replay software (Xvision)
- Selection of the camera (Q1A_ReplayDescribed-1_ID18.jpg)
- Save the requested frame with the snapshot button (Q1A_ReplayDescribed-2_ID18.jpg)

Qn.1A, if you used another method:

Please save and submit your results using the filename:

Q1A_OtherMethod_ID18.jpg

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, (ii) all tools used, and (iii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the Amped Five software (by Amped Software)
- Use the function DVR to Avi (screen capture)
- Select the region of interest from the video and the requested frame
- Capture the frame (Q1A_OtherMethod_ID18.jpg)

Qn.1B, if you used the supplied replay software:

Please save and submit your results using the file name:

Q1B_ReplayDescribed_ID18.jpg

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, and (ii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video file with the provided replay software (DM NetVu observer)
- Save the requested frame (right click with the mouse and then “Registrare” Q1B_ReplayDescribed_ID18.jpg)

Qn.1B, if you used another method:

Please save and submit your results using the filename

Q1B_OtherMethod_ID18

Please specify (i) the investigation method used to a) examine the video sequence and b) extract and examine the frame, (ii) all tools used, and (iii) all steps executed. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the Amped Five software (by Amped Software)
- Use the function DVR to Avi (screen capture)
- Select the region of interest from the video and the requested frame
- Capture the frame (Q1B_OtherMethod_ID18)

Qn.1C

Frame Size of source file recording used in Qn.1A					Frame Size of source file recording used in Qn.1B				
Q1A_ReplayDescribed-2_ID18.jpg	1008*	x	767*	pixels	Q1B_ReplayDescribed_ID18.jpg	720	x	594	pixels
Q1A_OtherMethod_ID18.jpg	732	x	616	pixels	Q1B_OtherMethod_ID18.jpg	1012	x	784	pixels

*Snapshot of the whole player window

What are your conclusions about the raw, encoded quality of the provided video frame/sequence in Q1A and Q1B?

The first player supplied (Xvision) gives an image subject to the dimension of the window and to the screen resolution (It’s not suitable for the repeatability of the method by another operator)

The player in Q1b (DM NetVu observer) gives an image independent to the resolution of the screen and to the dimension of the windows but the quality of the image is not good. The best method (in our opinion) is the use of other method such as Amped Five with the function of screen capture, so it’s possible to register all the followed steps.

Question 2: Super-Resolution from supplied sequence of 249 .bmp files

Qn.2A

Please select your best result, i.e.: a single best quality super-resolution image:
Please save and submit your results using filename:

Q2A_SuperRes_ID18.jpg

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the images sequence with Amped Five
- Apply Super-Resolution Algorithm to all the images
- Write the result to Q2A_SuperRes_ID18.jpg

2. Please specify all software tools and all Enhancement Filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

Super-Resolution Filter

- a. Zoom: 4
- b. # Iteration: 15

3. Did you select a "region of interest" for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

No

4. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

No (we use all the images)

5. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

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Qn.2B

Please select your best result, i.e.: a single best quality super-resolution image:

Please save and submit your results using filename:

Q2B_Super Res_ID18.bmp

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video with Amped Five
- Rotate the video of 180 degree
- Local Stabilization (two iterations)
- Apply Super-Resolution Algorithm to all the images
- Write the result to Q2B_Super Res_ID18.bmp

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 3

Decision reached how:

The third plate can be considered a good esteem in order to value the whole quality of the image

3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

Super-Resolution Filter

- a. Zoom: 4
- b. # Iteration: 15

4. Did you select a “region of interest” for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

yes
ROI : (145,153) w=38 h=14

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

All frames

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

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Qn2B. (continued): optional:

As indicated on the Collaborative Exercise webpage you may choose to submit multiple results. If this is the case then please specify how you obtained your results by replicating the previous 6 points for each Procedure/toolset used and/or each possible license plate you focussed on.

For example:

Please save and submit your results using filename:

Q2B_SuperRes_plate1_ID18.jpg
Q2B_SuperRes_plate2_ID18.jpg
Q2B_SuperRes_plate4_ID18.jpg
Q2B_SuperRes_plate5_ID18.jpg

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video with Amped Five
- Rotate the video of 180 degree
- Local Stabilization (two iterations)
- Apply Super-Resolution Algorithm to all the images
- Cut the region of interest corresponding to the selected plate
- Write the result to Q2B_Super Res_ID18.bmp

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 1,2,4 and 5

Decision reached how:

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3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

Super-Resolution Filter

c. Zoom: 4

d. # Iteration: 15

4. Did you select a “region of interest” for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

For each plate we've considered these different ROI

Plate 1 (571,417) w=145 h=55

Plate 2 (572,511) w=145 h=55

Plate 4 (586,699) w=126 h=47

Plate 5 (585,722) w=126 h=47

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

All frames

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

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Please save and submit your results using filename:

Q2B_SuperRes_plate3_ID18.bmp

1. How have you ingested the material into your enhancement system and super-resolution software tools?
Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video with Amped Five
- Specular position
- Cut the region of interest (plate 3)
- Resize the image (x2)
- Choice of the frame range.
- Local Stabilization
- Choice of the frames
- Global mean
- Super-Resolution
- Write the result to Q2B_SuperRes_plate3_ID18.bmp

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 3

Decision reached how:

-

3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

- Open the video with Amped Five
- Specular position
- Cut the region of interest (plate 3) [146 166 38 15]
- Resize the image (x2): output image dimension=(120, 60)
- Choice of the frame range : frame [1081,1216]
- Local Stabilization: window reference [20 22 76 20]
- Choice of the frames: frames [4, 7, 9, 11, 12, 16, 18, 19, 20, 21, 26, 28, 29, 35, 36, 39, 40, 45, 46, 47, 54, 55, 56, 59, 61, 64, 83, 88, 97, 99, 100, 117, 123,126]
- Frame Average
- Super-Resolution Zoom: 8; # Iterations: 50; Selection: [20 24 32 20]
- Write the result to Q2B_SuperRes_plate3_ID18.bmp

4. Did you select a “region of interest” for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

Plate 3: [146 166 38 15]

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

First Selection: Frame Range [1081,1216]

Second Selection: Frames [4, 7, 9, 11, 12, 16, 18, 19, 20, 21, 26, 28, 29, 35, 36, 39, 40, 45, 46, 47, 54, 55, 56, 59, 61, 64, 83, 88, 97, 99, 100, 117, 123,126]

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

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Qn.2C (optional)

Please select your best result, i.e.: a single best quality super-resolution image:
please save and submit your results using filename: “Q2C_SuperRes_YOURINITIALS”
Q2C_SuperRes_ID18.bmp

1. How have you ingested the material into your enhancement system and super-resolution software tools?

Please detail all steps of any conversion performed including all software tools and settings used. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

- Open the video with Amped Five
- Specular position
- Cut the region of interest [152 168 51 70]
- Local Stabilization: window reference [12 37 25 7]
- Choice of the frames: frames [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 133, 134, 135, 136, 137, 138, 139, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 164, 165, 166, 167, 168, 169, 170, 171, 173, 174, 175, 176, 177, 178, 179, 181, 182, 183, 184, 185, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232,

233, 234, 235, 238, 239, 240, 241, 242, 243, 244, 245, 247, 248, 249, 250, 251, 252, 253, 254, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 302, 303, 304, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 341, 342, 343, 344, 345, 347, 348, 349, 350, 351, 352, 353, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 398, 399]

- Super-Resolution Zoom: 5; # Iterations: 50; Selection: [11 6 30 9]

- Write the result to Q2C_SuperRes_ID18.bmp

2. Which of the 5 number plates have you concentrated your efforts on (1=closest number plate, ..., 5=most distant) and how did you decide on selecting this number plate?

Selected no. plate: 3

Decision reached how:

The third plate can be considered a good esteem in order to value the whole quality of the image

3. Please specify all software tools and all enhancement filters used (in order) and specific parameter settings; e.g. Super-Resolution Filter (Method? Zoom factor? Number of Iterations? Interpolation?.....)

see answer Qn.2C -1

4. Did you select a "region of interest" for directing the super-resolution tool? If so please specify co-ordinates of the region (if used) in the format given by the tool.

see answer Qn.2C -1

5. Did you select any specific frames or image? If so, please provide details of range of frames or specific frames you used.

see answer Qn.2C -1

6. Please provide any other information that would be needed so that others would be able to repeat and reproduce your work.

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Question 3: Focal deblur test

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

125 cm chart:

Please save and submit your results using filename:

Q3_125cm_ID18.jpg

Method

- Open the image with Amped Five
- Cut the region of interest (1070,200, w=763,h=1347)
- Contrast (+35) and brightness regulation (-37)
- Optical deblurring (Dimension = 38, Noise=0.0055)
- Write the image

75 cm, 4th line:

Please save and submit your results using filename:

Q3_75cm_Line4_ID18.jpg

Method

- Open the image with Amped Five
- Cut the region of interest (439,907, w=528,h=456)
- Optical deblurring (Dimension = 20, Noise=0.0032)
- Level Extraction (Red)
- Resize (x3)
- Contrast (+59) and brightness regulation (-51)
- Level regulation (shadows=0, mid-tones=68, high-light=217)
- Write the image

75 cm, 5th line:

Please save and submit your results using filename:

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any other results: optional:

Method:

- Open the image with Amped Five
- Resize of the image
- Optical deblurring
- Crop the region of interest)
- Unsharp Masking
- Contrast and Brightness
- Write the image

Q3_150cm_Line1-2_ID18.bmp

Q3_200cm_Line1-2_ID18.bmp

Q3_225-250cm_Line1-2_ID18.bmp

Question 4: Motion deblur test

Qn.4A:

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

If you wish to provide results for different regions of interest in the image, please specify their coordinates and/or indicate the region in a small thumbnail, and use the filenames: "Q4A_RegionNUMBER_YOURINITIALS".

Region NUMBER: coordinates and/or thumbnail:

Qn4A-Region_ID18.jpg

Qn4A-RegionNumber1_ID18.jpg

Method

- Open the image with Amped Five
- Crop the region of interest (95,829,w=178,h=89)
- Resize (x2)
- Motion Deblurring (Size=70,angle=6,Noise=0.0037)
- write Image

Qn4A-RegionNumber2_ID18.jpg

Method

- Open the image with Amped Five
- Crop the region of interest (399,1465,w=434,h=122)
- Resize (x2)
- Motion Deblurring (Size=70,angle=7,Noise=0.0084)
- Wiener Filter (Size=5,Noise=0.0100);
- Contrast (+36) & Brightness (+29)

-write Image

Qn4A-RegionNumber3_ID18.bmp

Qn4A-RegionNumber4_ID18.bmp

Qn4A-RegionNumber5_ID18.bmp

Method

- Open the image with Amped Five

-Motion Deblurring (Size=32,angle=4,Noise=0.0050)

- Crop the region of interest

- write Image

Qn.4B:

Please specify (i) all software tools or processing steps, (ii) all enhancement filters used (in order) and (iii) all specific parameter settings. The information you provide should have sufficient detail so that anyone could independently reproduce your results.

If you wish to provide results for different regions of interest in the image, please specify their coordinates and/or indicate the region in a small thumbnail, and use the filenames: "Q4A_RegionNUMBER_YOURINITIALS".

Region NUMBER:

Q4B_Region_ID18.jpg

Q4B_RegionNumber1_ID18.jpg

Method

- Open the image with Amped Five

- Nonlinear Deblurring

Points (1015, 1718

1020, 1719

1027, 1725

1031, 1734

1032, 1743

1031, 1754

1034, 1761

1040, 1762)

Noise: 0.0100

- Crop the region of interest

- write Image

Q4B_RegionNumber2_ID18.jpg

Method

- Open the image with Amped Five

- Nonlinear Deblurring

Points (591, 831

582, 834

573, 836

566, 837

560, 837

555, 834

549, 830

545, 825

544, 820

543, 816

541, 810)

Noise: 0.0464

- Crop the region of interest

- write Image

Q4B_RegionNumber3_ID18.jpg

Method

- Open the image with Amped Five

- Nonlinear Deblurring

Points (591, 831

582, 834

573, 836

566, 837

560, 837

555, 834

549, 830

545, 825

544, 820

543, 816

541, 810)

Noise: 0.0464

- Crop the region of interest

- write Image