

## Some Suggestions for “material not seen in class” to attract highest grades.

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To qualify for grades A or B you must include material not seen in class. This could include a reference to one or more journal articles, books or technical reports. Here are some other suggestions linked to each position paper. Just one per position paper is sufficient.

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### Position Paper 1.

- There are lots of filters based on kernels that we haven't seen in class, e.g., high-pass, low-pass, Robert's. There are other kernels that try to find edges and lines, e.g. Prewitt gradient masks, Line detection, Point detection. You could use an existing Octave script with one of these kernels. You could compare the results with filters you have seen in class.
  - Suggest how you would choose the optimal threshold for binary image segmentation. If you are a coder, you could even implement this.
  - Make a critical comparison of image enhancement using contrast-stretching and histogram equalization for several new images, perhaps including a color image.
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### Position Paper 2.

- Find out how George Boole came to formulate Boolean Algebra. Several of his books are available on-line.
  - **Prove using algebra** that the NOT, OR and AND gates can all be made out of several NAND gates. Hint: Start your proofs with DeMorgan.
  - Apply the technique learned in class to a novel problem. This is likely to have 3 inputs, possibly 4.
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### Position Paper 3

- Find out something about other navigation methods not seen in class. Remember the link to the online book.
  - Extend one of the worksheet activities. E.g. make a series of test shapes for line following, and find which shape works and which causes the robot to fail.
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### Position Paper 4

- Find an original (i.e. not provided) data set and fit a sigmoid curve to it.
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