Course Project Proposal

- **Names** (**Uni**)
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- **Problem.** A brief description of the problem you intend to work on.

  The problem we intend to work on is MRI denoising followed by tumor detection. In specific, our final goal is to be able to differentiate between the presence of meningioma and absence of any tumor.

- **Tools.** A brief description of the tools you might use.

  We will be using MATLAB (Image processing toolbox, any other relevant toolboxes).

  Image denoising: convolution.
  Image segmentation.
  Morphological image processing.
  Potentially other classification methods.

- **Desired outcomes.** What results do you hope to obtain? What obstacles might you encounter?

  Our final goal is to be able to differentiate between the presence of meningioma and absence of any tumor.

  The obstacle we anticipate is difficulty in differentiating between tumor and non-tumor cases. Another obstacle would be to find good quality data. However, the papers we found already have a publically available dataset.

- **References.** What literature have you looked at related to the topic?

1. Cheng, Jun, et al. "Enhanced Performance of Brain Tumor Classification via Tumor Region Augmentation and Partition." PloS one 10.10 (2015).
2. Cheng, Jun, et al. "Retrieval of Brain Tumors by Adaptive Spatial Pooling and Fisher Vector Representation." PloS one 11.6 (2016).
3. R. C. Gonzalez and R. E. Woods, “Digital image processing”. New York, NY: Pearson, 2018.