

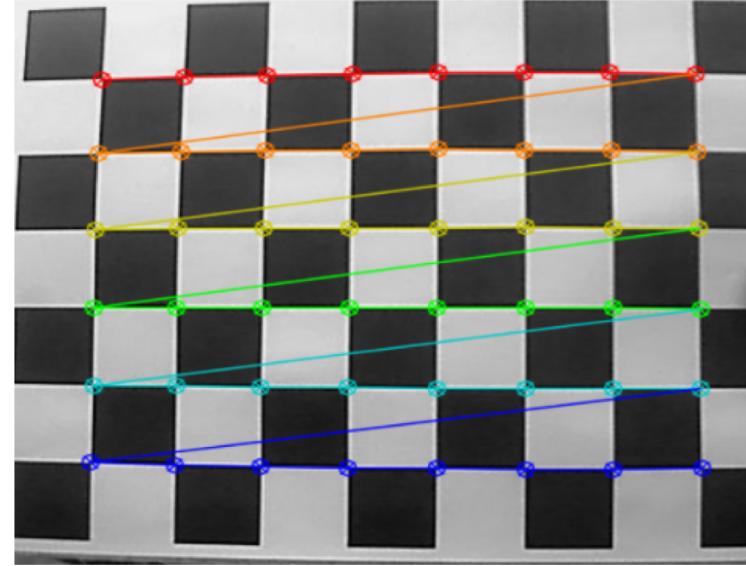
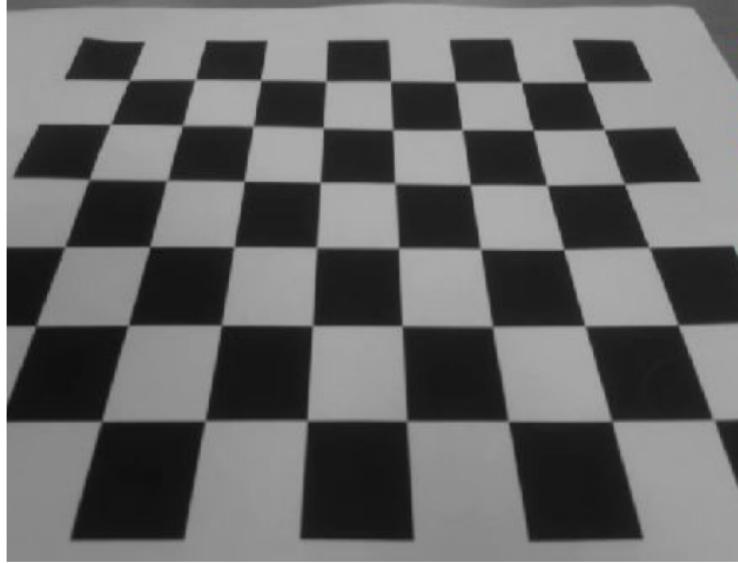


Perception

Perception in Robotics

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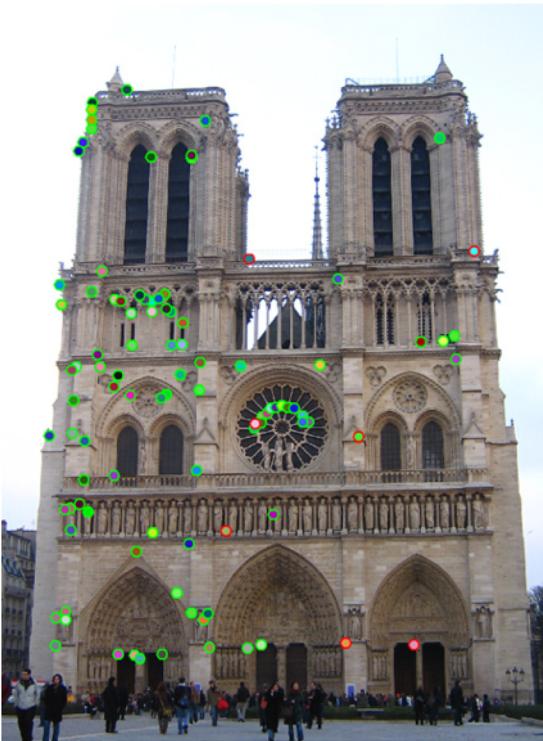
Camera Calibration



| Camera calibration:

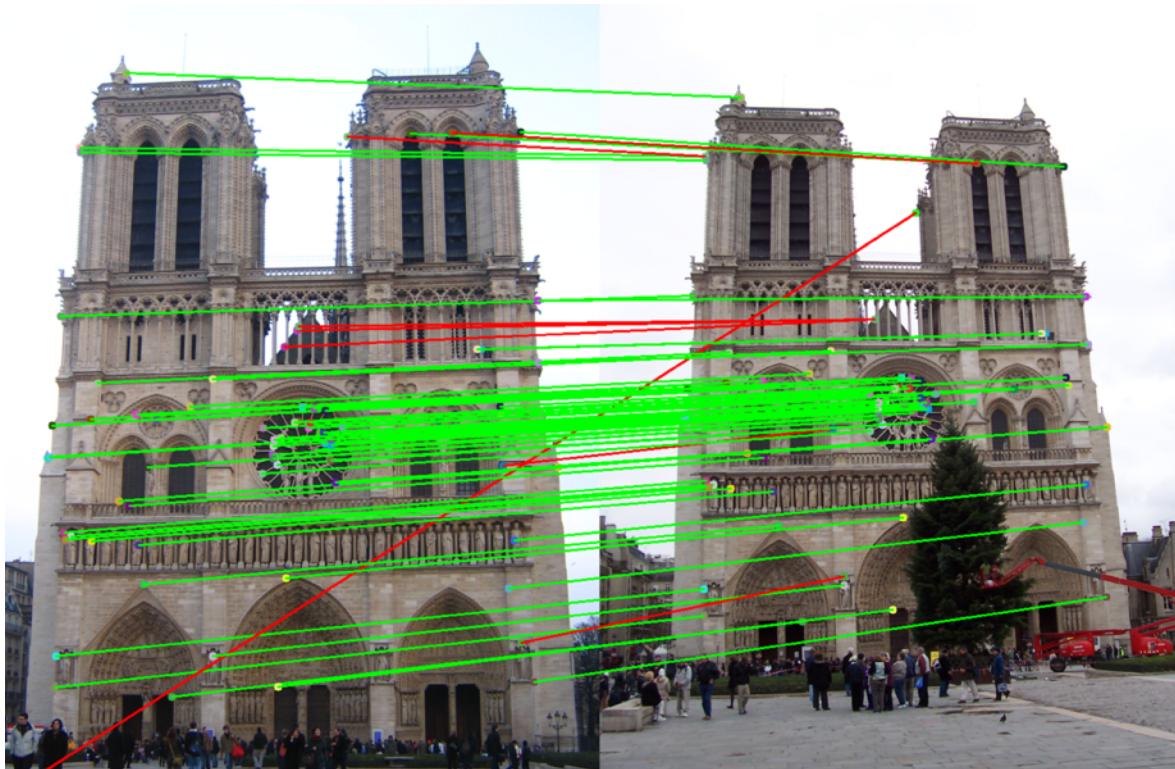
- Is the process of estimating the camera's internal characteristics, such as, its focal length, skew, distortion, and image center.

Feature and Image Matching



"Project 2: Local Feature Matching CS 6476: Computer Vision," Project 2: Local Feature Matching. [Online]. Available: <https://www.cc.gatech.edu/~hays/compvision/proj2/>. [Accessed: 11-May-2019].

Feature and Image Matching



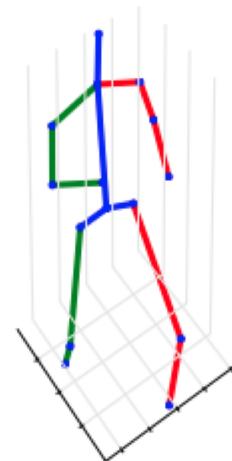
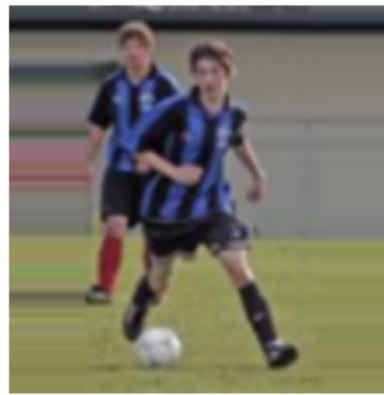
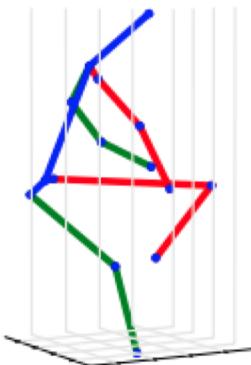
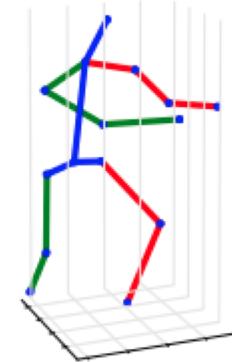
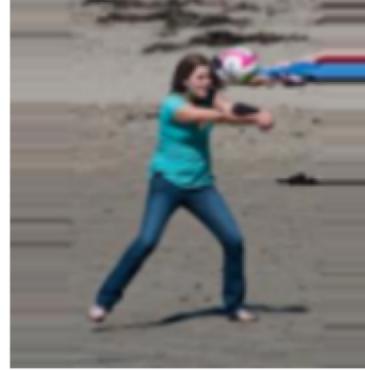
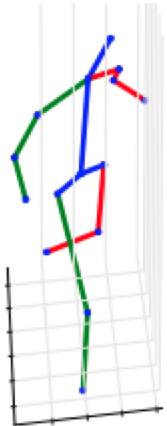
"Project 2: Local Feature Matching CS 6476: Computer Vision," Project 2: Local Feature Matching. [Online]. Available: <https://www.cc.gatech.edu/~hays/compvision/proj2/>. [Accessed: 11-May-2019].

3D Reconstruction

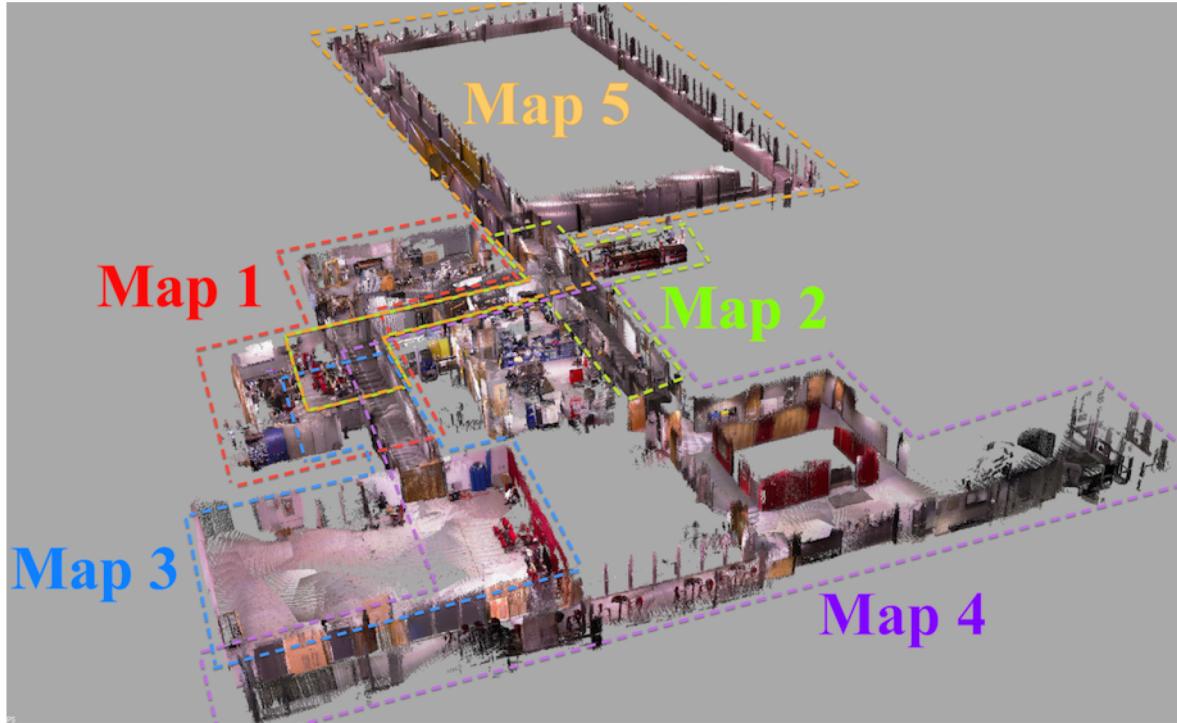


Osman Ulusoy, Ali, Michael J. Black, and Andreas Geiger. "Patches, planes and probabilities: A non-local prior for volumetric 3d reconstruction." Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition. 2016.

Pose Estimation

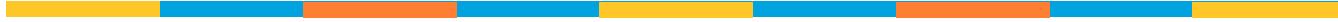


SLAM



| SLAM:

- Simultaneous localization and mapping, constructing or updating a map of an unknown environment while simultaneously keeping track of an agent's location within it.



Perception

Perception in Security

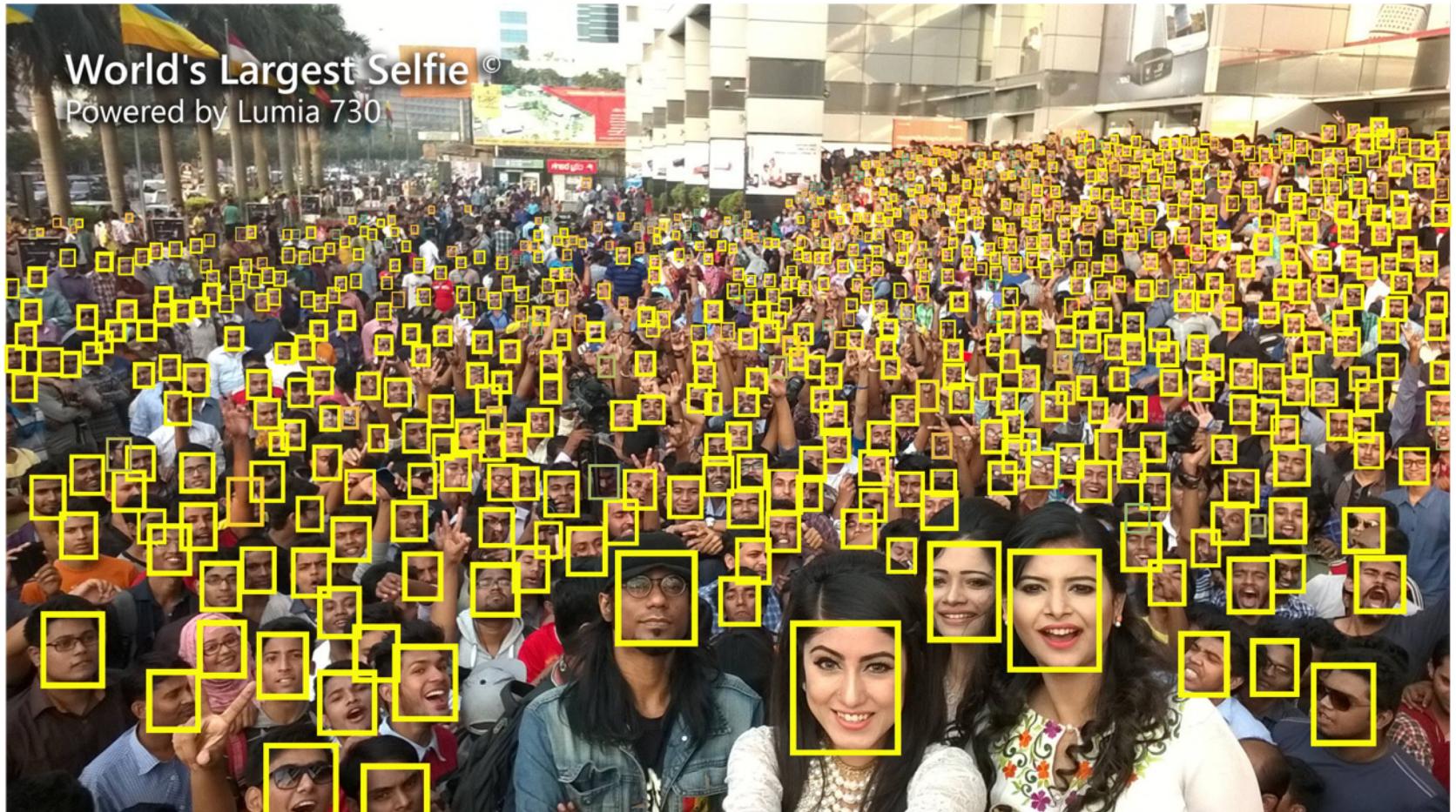
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Face Recognition



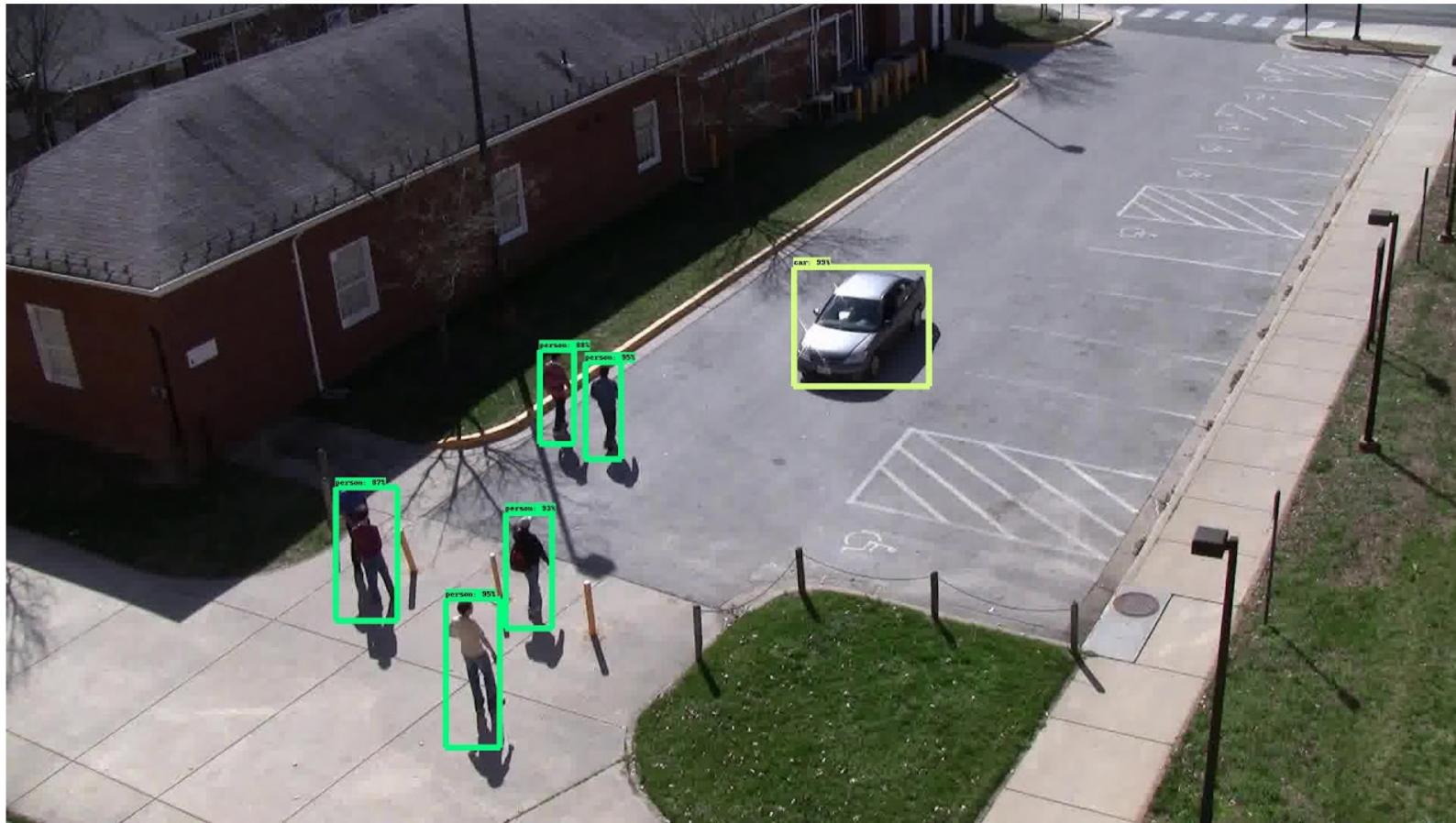
"Facing the future: facial recognition the future of hotel check-ins," TOPHOTELNEWS, 07-May-2019. [Online]. Available: <https://tophotel.news/facing-the-future-facial-recognition-the-future-of-hotel-check-ins/>. [Accessed: 11-May-2019].

Face Detection



Hu, Peiyun, and Deva Ramanan. "Finding tiny faces." Proceedings of the IEEE conference on computer vision and pattern recognition. 2017.

Pedestrian / Vehicle Detection



Oh, Sangmin, et al. "A large-scale benchmark dataset for event recognition in surveillance video." CVPR 2011. IEEE, 2011.

Event Detection



Embrace Action



Point Action

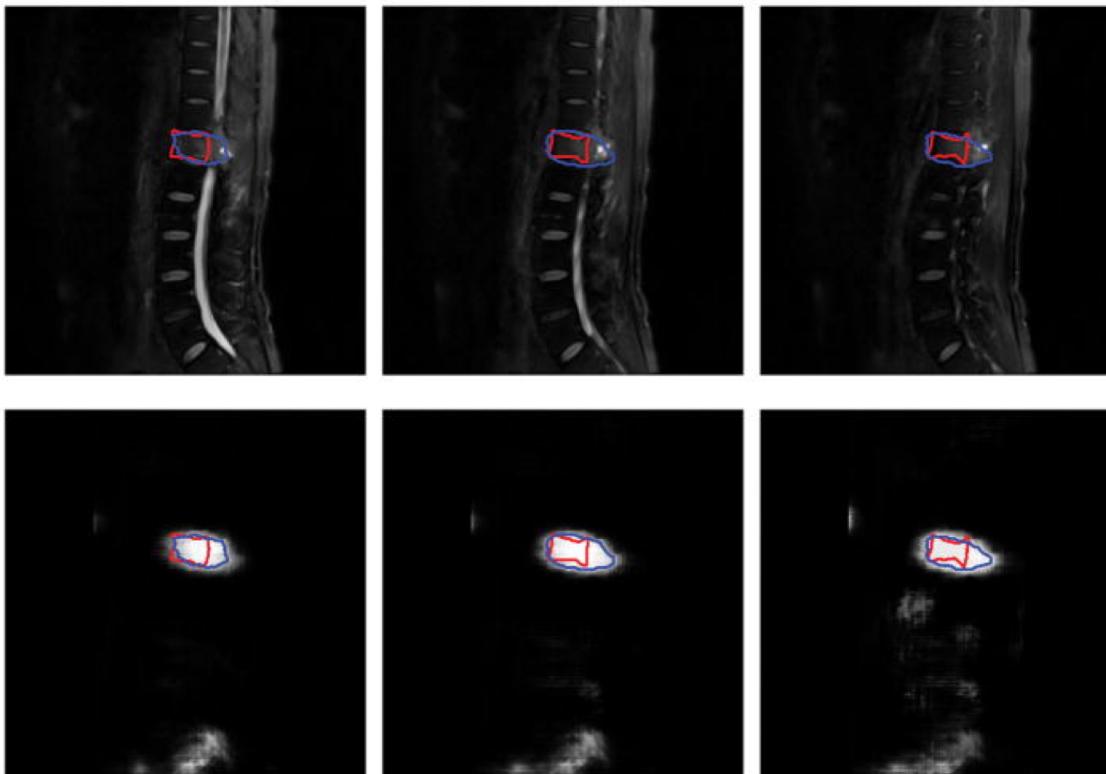


Perception

Perception in Medical Images

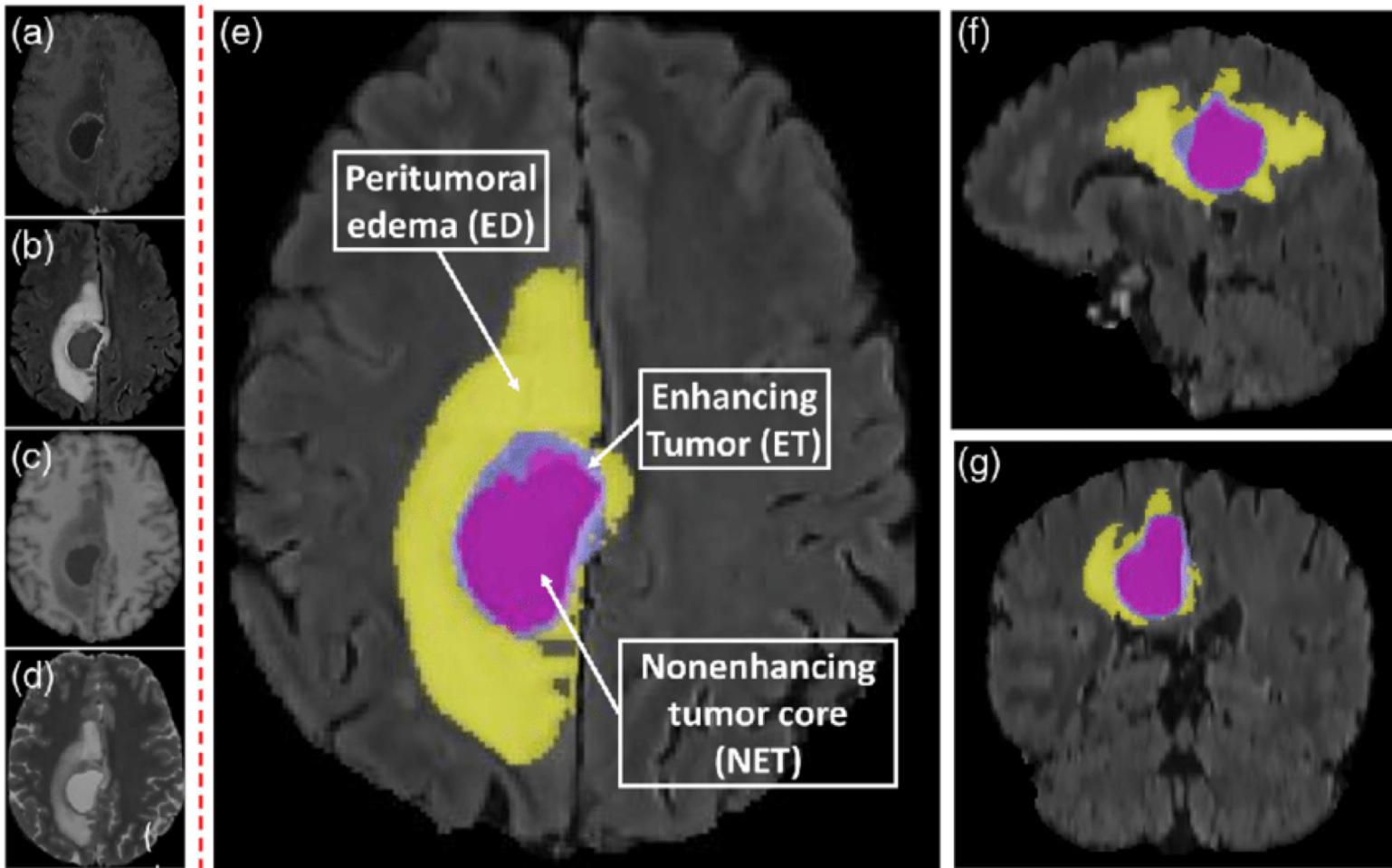
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Disease Detection

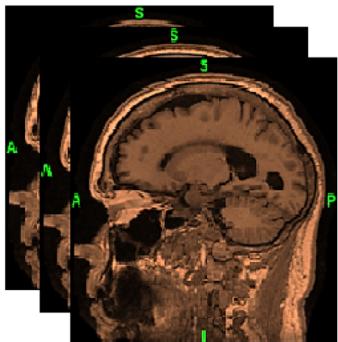


A multi-resolution approach for spinal metastasis detection using deep Siamese neural network, [Juan Wang](#), and etc.

Brain Tumor Segmentation



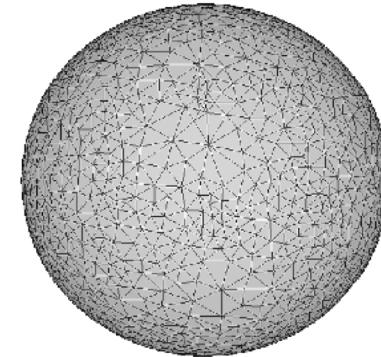
Cortical Thickness Estimation



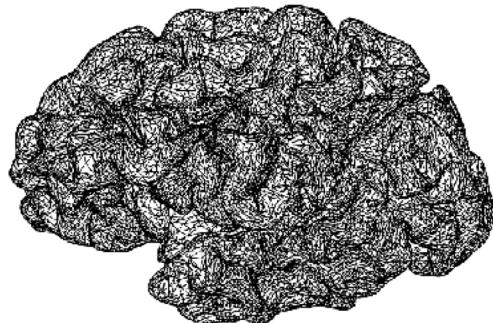
(a) MRI Scan at Baseline



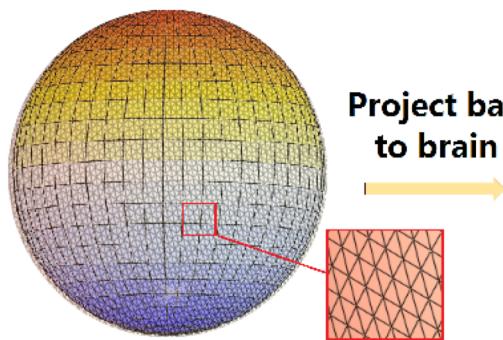
(b) Surface Reconstruction



(c) A spherical mesh by FreeSurfer



(d) The weighted spherical harmonic representation



(e) Project patches from sphere to brain