**Efficient Evaluation of Epithelial/Absorbed Power Density by Multi-Antenna User Equipment with SAM Head Model**

This repository contains the MATLAB code developed for the work presented in the paper “Efficient Evaluation of Epithelial/Absorbed Power Density by Multi-Antenna User Equipment with SAM Head Model”.(https://ieeexplore.ieee.org/document/10578308)

**Main Files**

* SDP\_CVX\_PSO\_1.m
* SDP\_CVX\_PSO\_2.m

**Auxiliary Functions**

* is\_in\_tri.m
* is\_in\_uv.m
* obj\_vt.m
* uv2xyz.m

**Instructions**

1. **Run** obj\_vt.m **first**: This script takes a parameterized 3D OBJ file and the corresponding 2D parameter space texture map image file as inputs. The output uv2xyz\_info.mat is a necessary input for the function uv2xyz.m.
2. **Texture Map Requirements**: If using parameterization methods like Free Border Surface Parameterizations (e.g., Least Squares Conformal Maps, LSTM), ensure that the texture map image file uses at least two different colors to distinguish between the inside and outside of the border. The default color for the outside of the border is rgb (50, 50, 50).
3. **3D Surface Parameterization**: For detailed 3D surface parameterization methods, refer to CGAL’s Surface Mesh Parameterization documentation (https://doc.cgal.org/latest/Surface\_mesh\_parameterization/index.html). We have found that this C++ tool provides better results.
4. **Electromagnetic Field Data**: The scripts SDP\_CVX\_PSO\_1.m and SDP\_CVX\_PSO\_2.m correspond to equations (1) and (2) in the paper, respectively. The required electromagnetic field data input format is the same as the format exported by SEMCAD V19.2. Refer to the SEMCAD V19.2 documentation for specific details.

Part of SEMCAD V19.2 documentation:

图片包含 文本

描述已自动生成