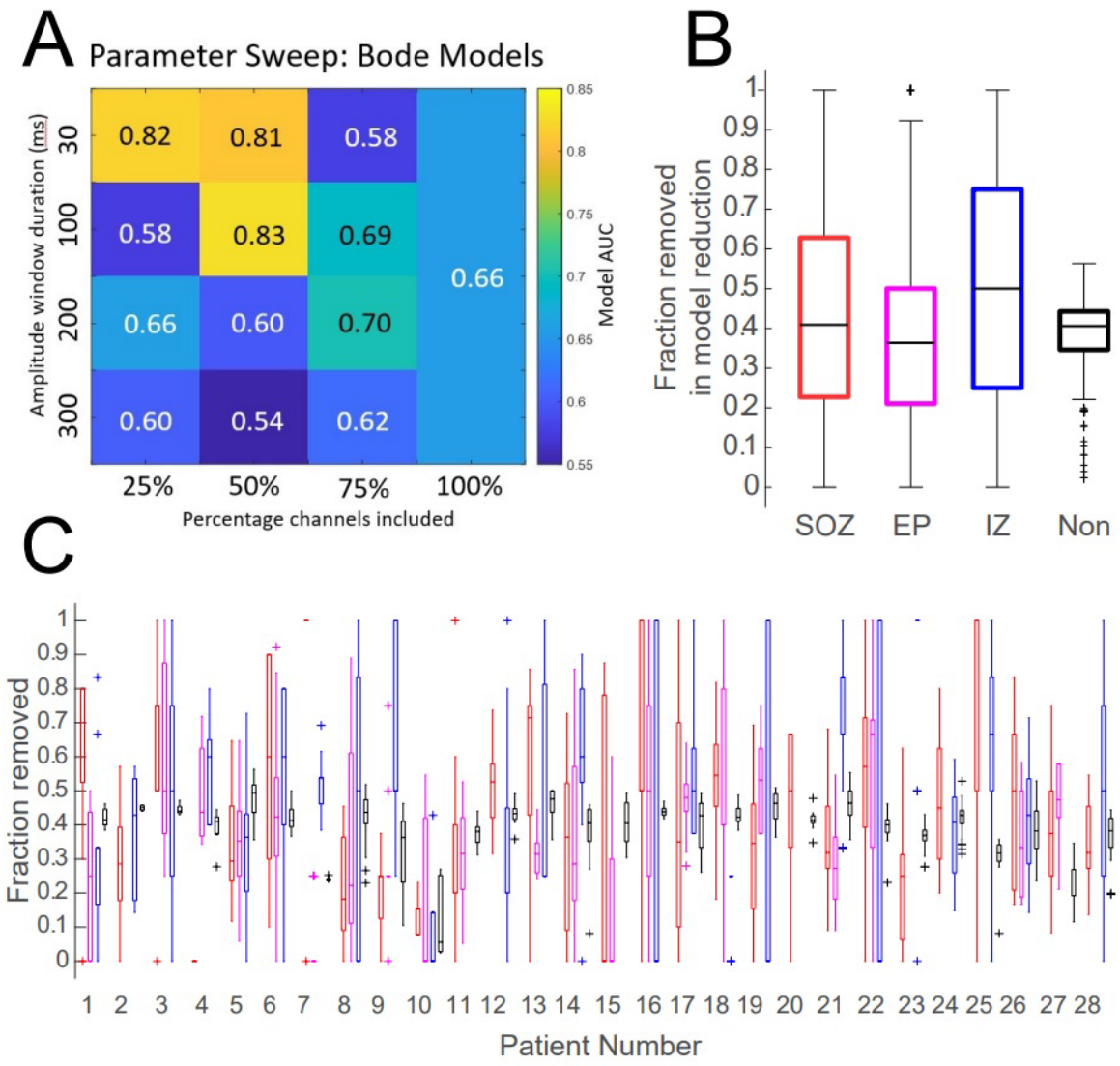
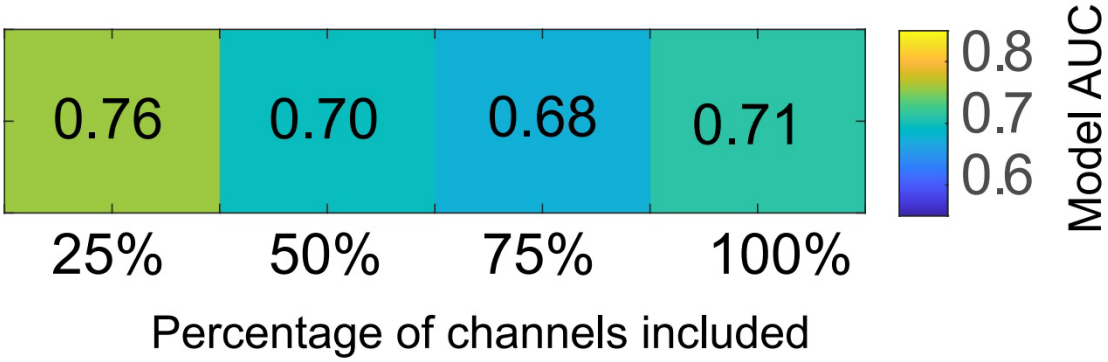
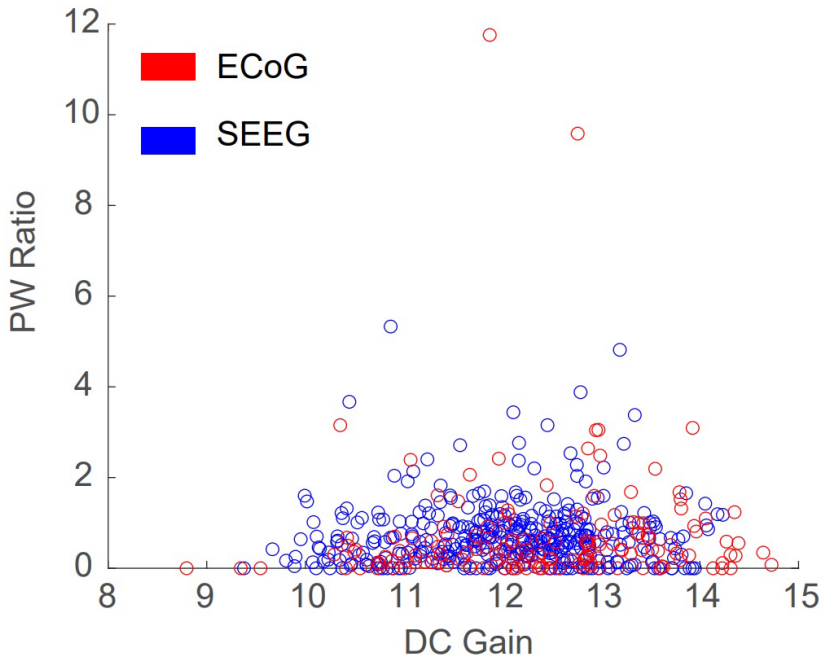


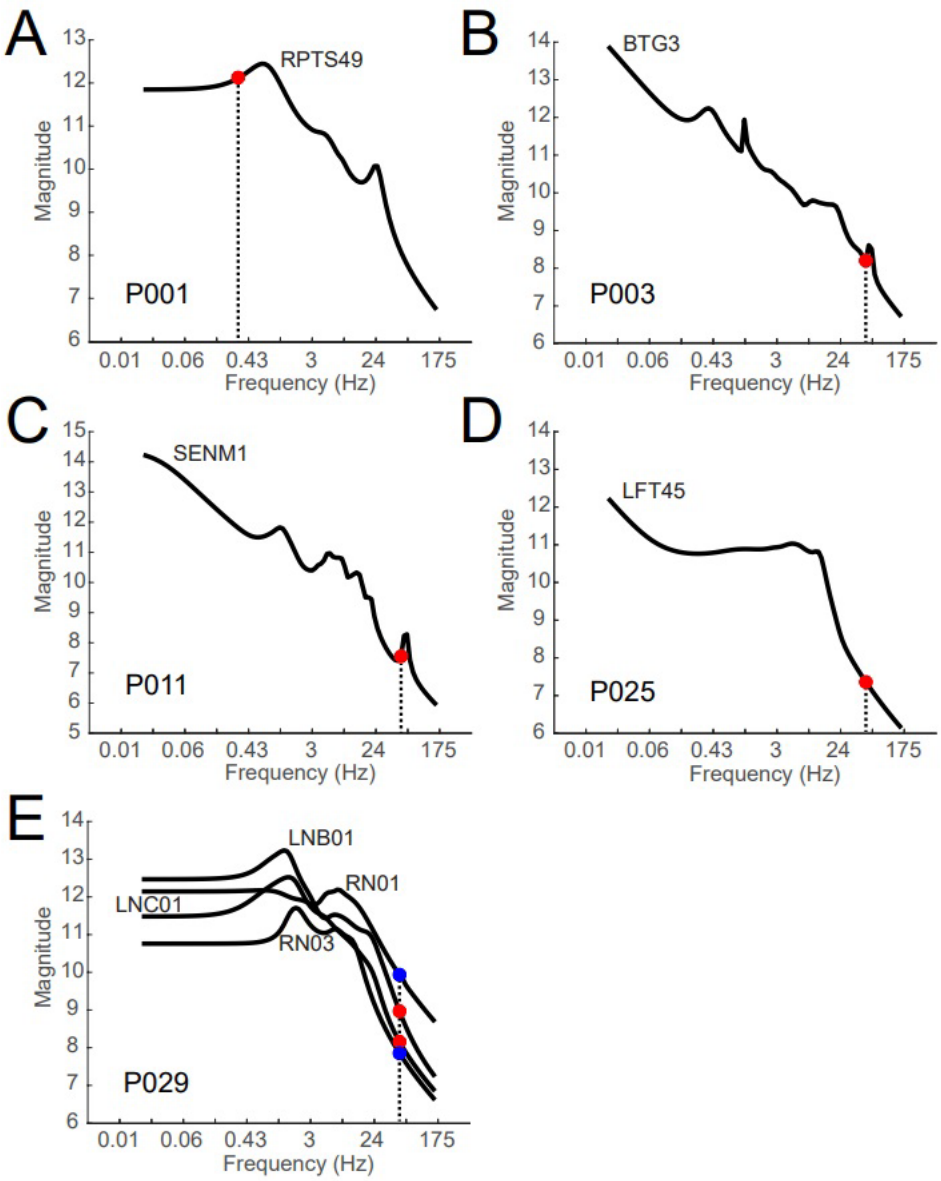
Supplementary Figure 1 Parameter sweep to determine parameters to create bode plot transfer function models. (**A**) We varied the size of the post-stimulation window and measured the maximum response amplitude and varied the percentage of the most responsive channels included in the model. We found that a window size of 100 ms after stimulation and including 50% of channels best distinguished surgical outcomes (AUC= 0.83). (**B**) Overall, similar fractions of SOZ, early propagation (EP), irritative zone (IZ), and non-epileptogenic (Non) channels were removed from the models. (**C**) Fractions of channel grouping removed for each patient.



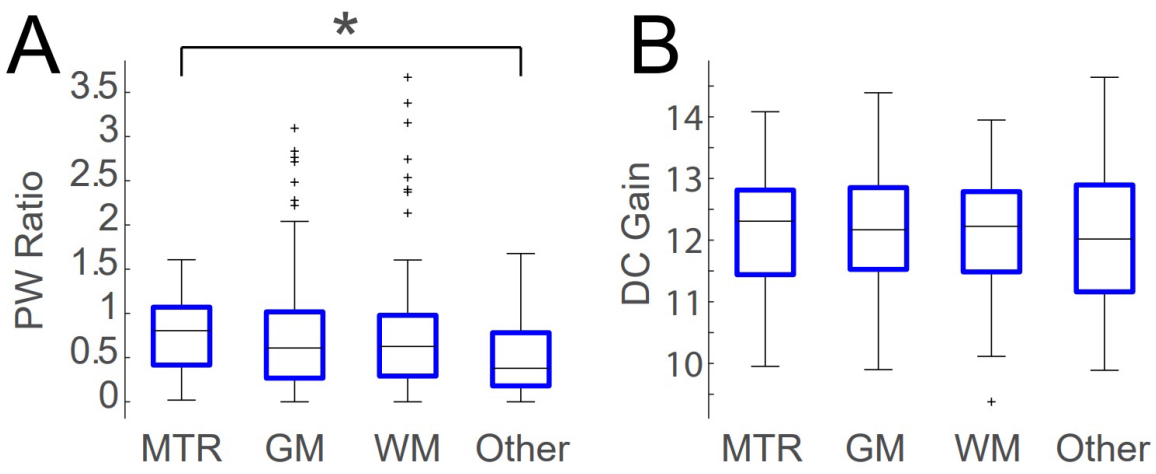
Supplementary Figure 2 Parameter sweep to determine optimal channels to include in CCEP models. We varied the percentage of the most responsive channels included in the model. We found that the channels with the top 25% Z-scores best distinguished surgical outcomes (AUC= 0.76).



Supplementary Figure 3 PW Ratios versus DC Gains for different types of recording electrodes. Overall, there is little difference between features of the bode model in SEEG and ECoG electrodes, indicating a robustness of the method to recording schemes.



Supplementary Figure 4 Seizures are retrospectively stimulated in patients with corresponding resonant peaks in bode plot. The black line shows the bode plot for each stimulation pair and labeled with the first stimulation channel name. The circles indicate the frequency of periodic stimulation that elicited a seizure (red), aura (green), or after-discharges (blue).



Supplementary Figure 5 Higher PW ratios when stimulated from mesial temporal regions. (**A**) Boxplots of PW ratios from models built when stimulating from mesial temporal regions (MTR), grey matter (GM), white matter (WM), and any unknown or other electrode (Other). Stimulation of the MTR region gives slightly greater PW ratios than grey or white matter, but significantly greater values than Other. (**B**) Boxplots of DC Gains from models built when stimulating from the MTR, GM, WM, and Other. There were no significant differences in DC Gains derived from the different stimulation locations, however, including an indicator function on the logistic regression model for the DC Gain distinguished by whether the SOZ was in the MTR or not improved prediction accuracy of surgical outcome. We derived these data from patients that had automatic anatomical labeling, 18 of the 32 total patients.

Supplementary Figure Captions:

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