**Supplemental Table 1.** Total number of dermatomally exclusive receptive fields, dermatomally unique receptive fields, perceptually exclusive percepts, and total receptive fields for all subjects. The most conservative category was “dermatomally exclusive fields”, defined as electrodes that evoke sensations that cover a dermatomally unique set of boxes, without any dermatomal overlap with another set of electrodes. The second most conservative category of receptive fields was “dermatomally unique receptive fields”, where receptive fields were included if the electrode pair stimulated boxes that overlapped with the boxes of a different electrode pair, but included a unique set of boxes (and therefore would be discernable to the subject). “Perceptually exclusive” was the least conservative category and counted an electrode pair that had completely overlapping boxes, but the reported percept was unique and distinguishable, including on repeat testing (minimum three repetitions for each electrode pair). For example, “buzzing” versus “soft brushing” in the same set of boxes would be two unique percepts.

| Subject | Dermatomally exclusive (% of total) | Dermatomally unique (% of total) | Perceptually exclusive (% of total) | Total receptive fields |
|---------|------------------------------------|----------------------------------|------------------------------------|-----------------------|
| 1       | 1 (12.5)                           | 2 (25)                           | 2 (25)                             | 8                     |
| 2       | 3 (27.3)                           | 3 (27.3)                         | 3 (27.3)                           | 11                    |
| 3       | 2 (33.3)                           | 5 (83.3)                         | 5 (83.3)                           | 6                     |
| 4       | 1 (25)                             | 3 (75)                           | 3 (75)                             | 4                     |
| 5       | 1 (100)                            | 1 (100)                          | 1 (100)                            | 1                     |
| 6       | 6 (46.2)                           | 10 (76.9)                        | 11 (84.6)                          | 13                    |
| 7       | 3 (60)                             | 5 (100)                          | 5 (100)                            | 5                     |
| 8       | 3 (42.9)                           | 5 (71.4)                         | 6 (85.7)                           | 7                     |
| 9       | 2 (66.7)                           | 3 (100)                          | 3 (100)                            | 3                     |
| 10      | 2 (18.2)                           | 3 (27.3)                         | 7 (63.6)                           | 11                    |
| 11      | 4 (44.4)                           | 7 (77.8)                         | 7 (77.8)                           | 9                     |
| 12      | 3 (100)                            | 3 (100)                          | 3 (100)                            | 3                     |
| 13      | 6 (40)                             | 12 (80)                          | 15 (100)                           | 15                    |