We appreciate your time and valuable comments. We have carefully responded to all the reviewers’ comments.

**Reviewer 2**

Q1. The impact on evaluation score when misclassifying invisible voxels - A1. As described in section 4.2, shaded regions (voxels that are not visible) are padded by one (as shown in Fig. AR1). Therefore, the invisible voxels do not affect the performance of the Bat-G network.

Q2. Grammatical mistake (e.g. vertexes) and Fig.1 appear before the abstract - A2. We will correct “vertexes” to “vertices” and move Fig. 1 to the second page. In addition, we will check other grammatical errors and fix them.

Q3. Hard to fully understand the SAE network without seeing the supplementary material - A4. In the final manuscript, we will gladly include the specific details of the SAE (from the supplementary material) and the reason why we have chosen the SAE as a baseline (from Q1 – Reviewer 4) in the main manuscript.

**Reviewer 3**

Q1. Comparison between 3D US imaging in medicine and the proposed system - A1. The fundamental differences in principle and implementation are depicted in Fig. AR2 due to the page limit.

Q2. Compressing Sections 1-3 and adding more details to Sections 5-7 - A2. We will reorganize the contents of each section to add more details on the design strategies of the Bat-G net and analysis/discussion of the experimental results.

**Reviewer 4**

Q1. Why SAE was chosen as the baseline - A1. The current state-of-the-art image reconstruction method using a neural network [Bo Zhu et al., 2018] demonstrates that the architecture composed of SAE and fully-connected (FC) layers can effectively learn forward reconstruction method composed of two manifold transformations: (a) diffeomorphism between sensory input and latent space in low dimension and (b) manifold mapping from latent space to the output image. Therefore, such SAE (with a FC layer) structure is selected as the baseline, while maintaining the number of parameters and layers equal to that of Bat-G network for a fair comparison. In the final manuscript, we will add the description of the reason why we have chosen the SAE structure as the baseline.

Q2. It would have been a more compelling argument if the performance of Bat-G was reported with the biomimetic connection removed - A2. Biomimetic connection emulating a bat’s auditory pathways includes monaural/binaural path and direct connection to deeper layers (>2). When the biomimetic connections are removed from the Bat-G network as shown in Fig. AR3, the ablated output eventually becomes identical to the SAE. As a result, comparing the reconstruction performance of the Bat-G net with that of SAE is equivalent to validating the efficacy of biomimetic connections of the Bat-G net.