INTRODUCTION
A deep understanding of materials and the handskills necessary to manipulate them are vital to successful conservation treatments. This project shows how the ancient Japanese crafts of shifu and kami-ito were applied in the conservation treatment of a Hupa Indian basketry hat. Shifu is a traditional Japanese textile woven from, kami-ito, paper thread made from handmade Japanese paper. By understanding and mastering the process of making kami-ito, large amounts of strong and even thread can be produced while maintaining the aesthetic of a handmade product. The appearance of the kami-ito can be altered by using different papers and making slight changes in the production process. This Hupa Indian basketry hat treatment required structural repairs and several small fills for aesthetic reintegration. Kami-ito proved to be strong enough to complete the repairs without disturbing the fragile bast fibers of the object. This treatment shows one use of kami-ito, but the versatility of the material suggests other potential uses in the field of art conservation.

APPLICATION IN TREATMENT
THE OBJECT: A woven basketry cap from the Hupa Nation of American Indians. The hat is woven from bast and root fibers. The main structural issues are two areas of loss, and an area of tears (Figure 10).

TREATMENT: The tears and losses were repaired with kami-ito made from 50/50 mitsumata and gampi paper. This fiber combination best matched the surface characteristics of the hat fibers. The thread was spun loosely to match the striations of the bast fibers in the hat. The fill was woven in the same manner as the original. All repairs were set in place with wheat starch paste and toned with acrylics.

MAKING SHIFU
1. FOLDING AND CUTTING
Traditionally, handmade Japanese kozo fiber paper is used for kami-ito, although gampi and mitsumata papers can be used. Four sheets of paper are folded together before cutting, increasing efficiency. The width of the strips is determined by the desired final thread size.

2. ROLLING
The cut sheets are humidified, then rolled on sanded smooth concrete blocks. The rolling begins in the center of the section, gradually moving to the ends. The rolled bundle is periodically shaken from alternate ends to discourage entanglement. The rolling continues until the strips pull apart from each other, forming a slight U shape where they are joined by the inch of paper left during cutting.

3. CREATING THE “SEED”
The strips are joined in one continuous thread by tearing a small tab of paper from the connecting strip above two threads. This tab is rolled in the same direction you intend to spin the thread creating the “seed”. This seed is one of the most notable characteristics of paper thread, and forms a unique pattern in the final woven cloth.

4. SPINNING
Spinning is usually done with a Japanese spinning wheel to achieve a tight twist, but a lightweight drop spindle can be used. The resulting thread is slightly airier and weaker due to the looser twist. After spinning, the thread is wound on bamboo spindles and boiled or steamed to set the twist.

5. WEAVING
Historically, a floor loom was used for weaving kami-ito, sometimes with a cotton or silk warp. For this project a Cricket loom was used. Samples of cotton warp with paper weft, and paper warp and weft were made. A plain weave was used for all samples, varying the spacing of the warp threads to create a pattern.