What is a packcat?
A packcat is a two-hulled, one-person inflatable raft known for being portable, lightweight, and durable.

Design Configurations

I. Raft
Low and wide seat for stability. Frame uses 6061-T6 Aluminum and carbon fiber tubing.

Raft configuration with assembled paddle.

II. Sleeping Cot
Paddle shaft extends frame to 75" long. Using the paddle shaft as part of the assembly uses 30% less tubing, and reduces load by 0.5 lb.

Cot configuration.

III. Camp Chair
Reclining chair uses paddle shaft and cross member for back support.

Camp chair configuration.

Background
Conventional packrafting requires the user to carry additional camping gear increasing load, volume, and fatigue. Our design incorporates a sleeping cot and camping chair while weighing nearly 20 lbs. less than some of the competition.

Design analysis
Finite elements analysis used to determine the maximum stresses on the cross-members.

Matlab was used to create a script which would plot the stresses in the frame against design specifications to determine the optimal spacing between the cross members.

Stress distribution in frame member.

Optimal spacing between frame cross-members.