John Pauly
Quals Questions 2007

You have a band limited signal that is sampled at known but apparently random times.

Can you recover the signal?

What conditions do you need?

How would you go about the reconstruction?

J. Pauly 2009

A bandlimited signal x(t) has been sampled at the Nyquist rate to produce a discrete time signal x[n].

x[n] is then applied to a zero-order hold to produce x_r(t), a reconstruction of the original continuous time signal x(t).

1. Sketch the spectrum of the output X_r(f), assuming you know the input spectrum X(f).

2. Assuming we still want to use a zero-order hold, how can we improve the fidelity of the reconstructed signal?

2013 Quals Questions

Hi --

Here they are.

Thanks!

-- John Pauly

Question 1:
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f(t) is a real, causal signal.

Given Re{F(s)}, for s>=0, can you find f(t)?

Question 2:
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f(t) is a signal bandlimited to ± B.

How many times can it cross zero over an interval from 0 to A?