



# סמינר משתלמים

You are invited to attend a lecture by  
**Hadas Ofir\***

הנכם מוזמנים להרצאתה של  
**הדס אופיר \***

בנושא :

## Packet Loss Concealment for Audio Streaming

Internet audio streaming, based on MPEG-Audio coders such as MP3, has become very popular in recent years. However, since internet delivery doesn't guarantee quality of service, data packets are often delayed or discarded during network congestions, causing gaps in the streamed media. Each such gap, unless concealed in some way, produces an annoying disturbance. In this work we present a new algorithm for audio packet loss concealment, designed for MPEG-Audio streaming, based only on the data available at the receiver. Previous works start from simple techniques, such as packet repetition, on to advanced techniques that use interpolation in the compressed domain.

The concealment algorithm presented in this work, estimates the missing data in the DSTFT (Discrete Short-Time Fourier-Transform) domain using the GAPES (Gapped-data Amplitude and Phase Estimation) algorithm. The GAPES algorithm uses an adaptive filter-bank approach to estimate the spectral coefficients from the available data and then reconstructs the set of missing samples so that their spectral content will approximate the spectrum of the available data, in the least-squares (LS) sense. Since MPEG-Audio coders use the MDCT (Modified Discrete Cosine Transform) for compression, the data is converted to the DSTFT domain (and vice versa) using an efficient procedure that was also developed in this work. Examined subjectively by a group of listeners, the proposed algorithm performed better than previously reported methods, even at high loss rates.

\* M.Sc. Research under the supervision of Prof. David Malah.

\* סטודנטית לתואר שני בהנחיית פרופ' דוד מלאך.

The lecture will take place  
On Tuesday, 9.5.06 at 14:30  
in Room 1061 Electrical Eng. Building  
Technion City

ההרצאה תתקיים ביום ג' 9.5.2006  
בשעה 14:30 בחדר 1061  
בבניין הפקולטה להנדסת חשמל  
קריית הטכניון

כיבוד קל יוגש לפני ההרצאה

