

ALGORITHMICALLY GENERATED MUSIC ENHANCES VR DECISION SUPPORT TOOL

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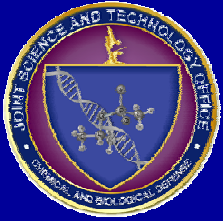
Los Alamos National Laboratory

Victor M. Vergara and Shan Xia

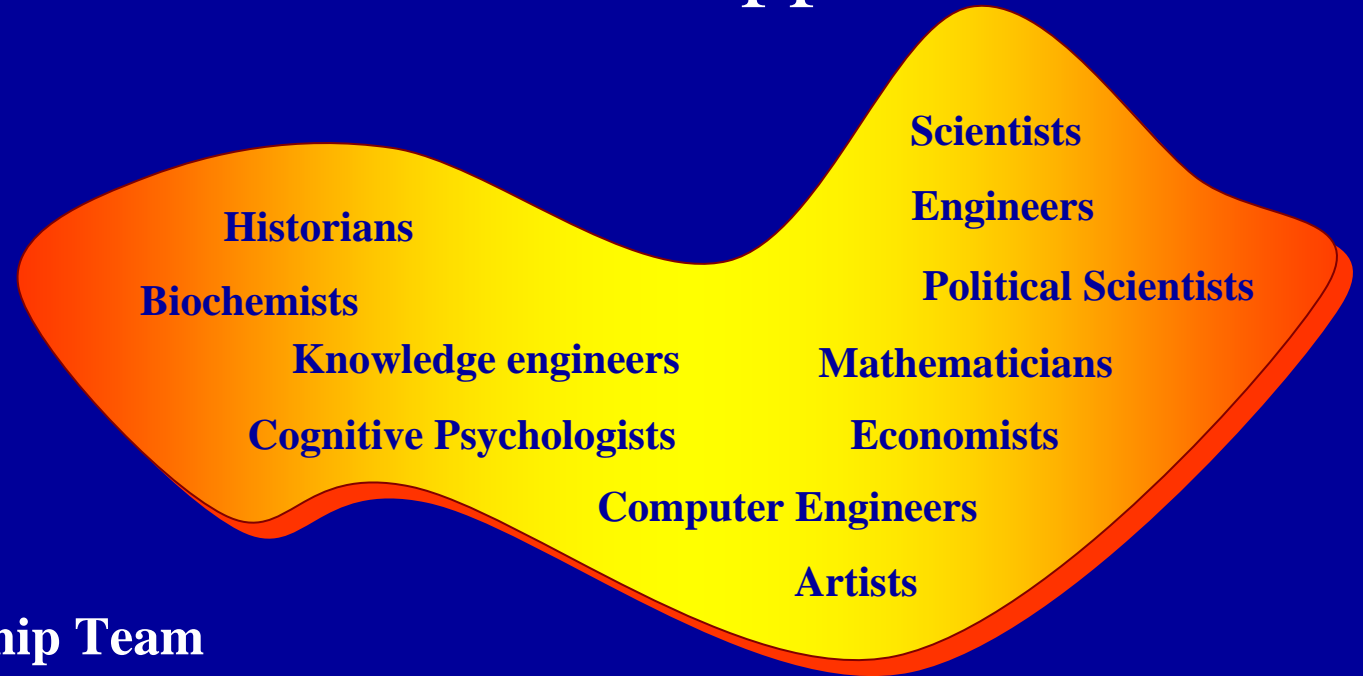
Department of Electrical and Computer Engineering
The University of New Mexico

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CB Defense Decision Support Tool



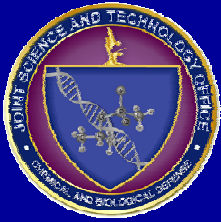
University Partnership Team

UNM – Frank Gilfeather, Thomas Caudell,
Panaiotis, Tim Ross, Mahmoud Taha

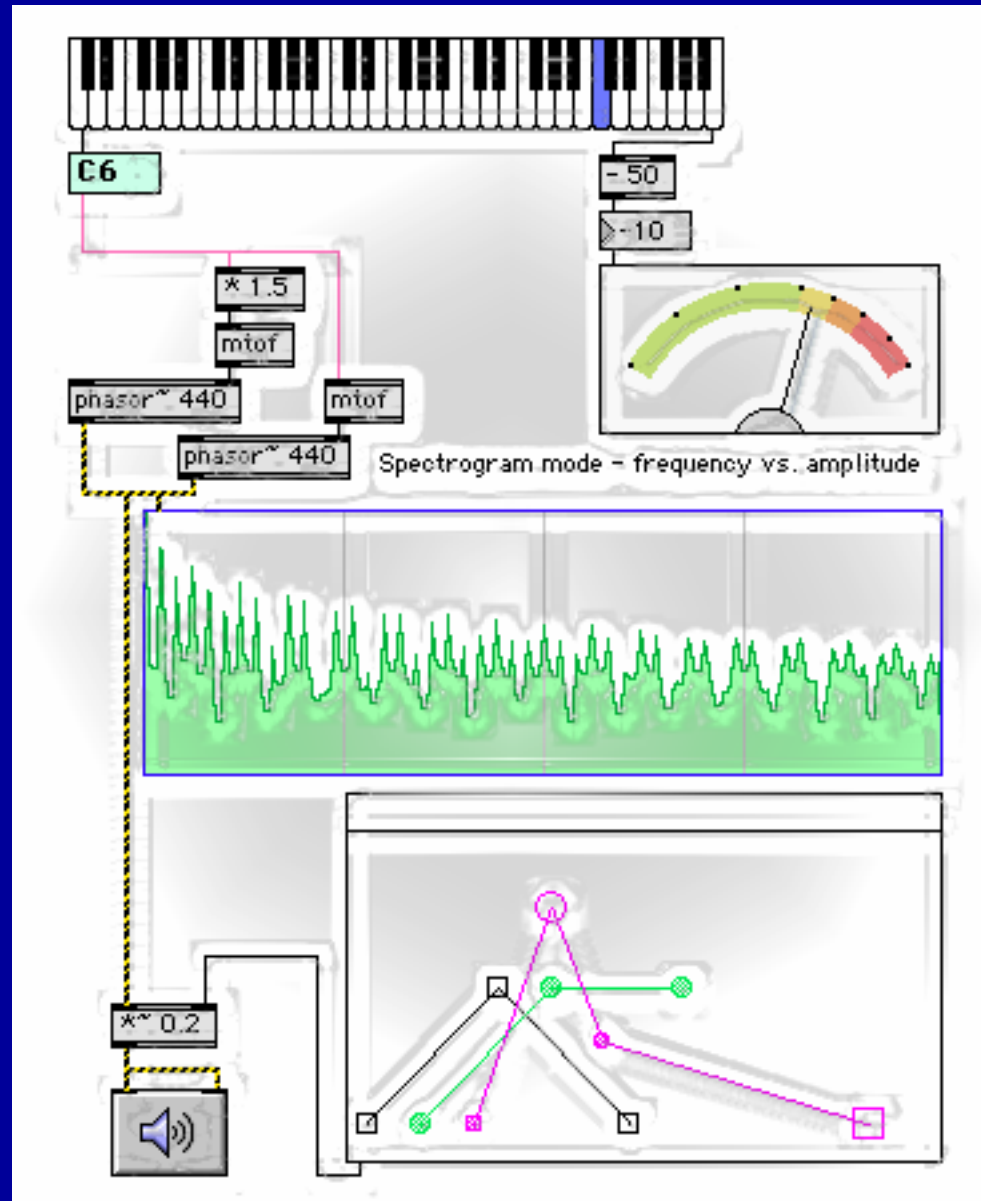
NMSU – Jim Cowie, Chris Fields,
Hung Nguyen, Bill Ogden, Ram Prasad

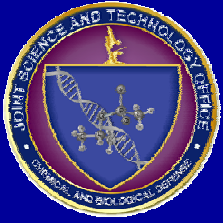
MIIS – Gary Ackerman, Markus Binder,
Sundara Vadlamudi

Engages a broad-based team of creative professionals

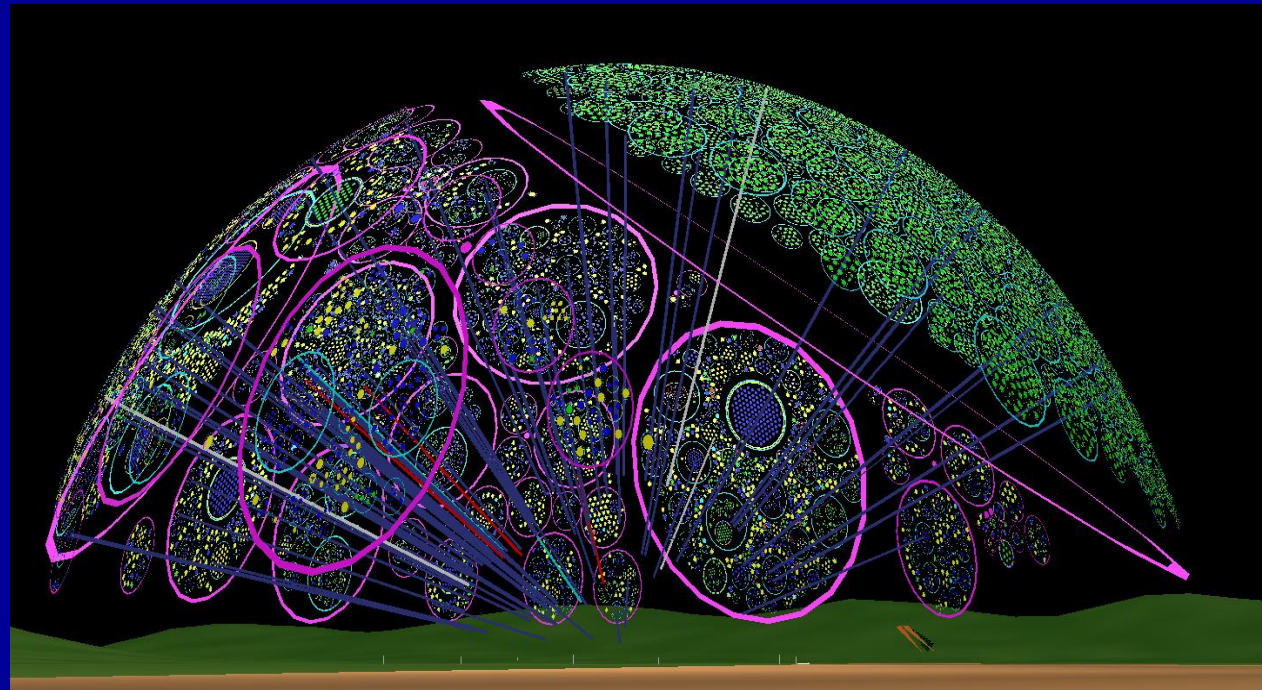


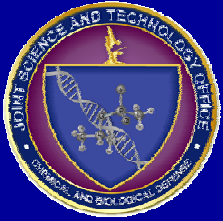
Science Serving Art





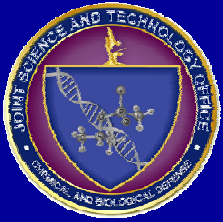
Art Serving Science



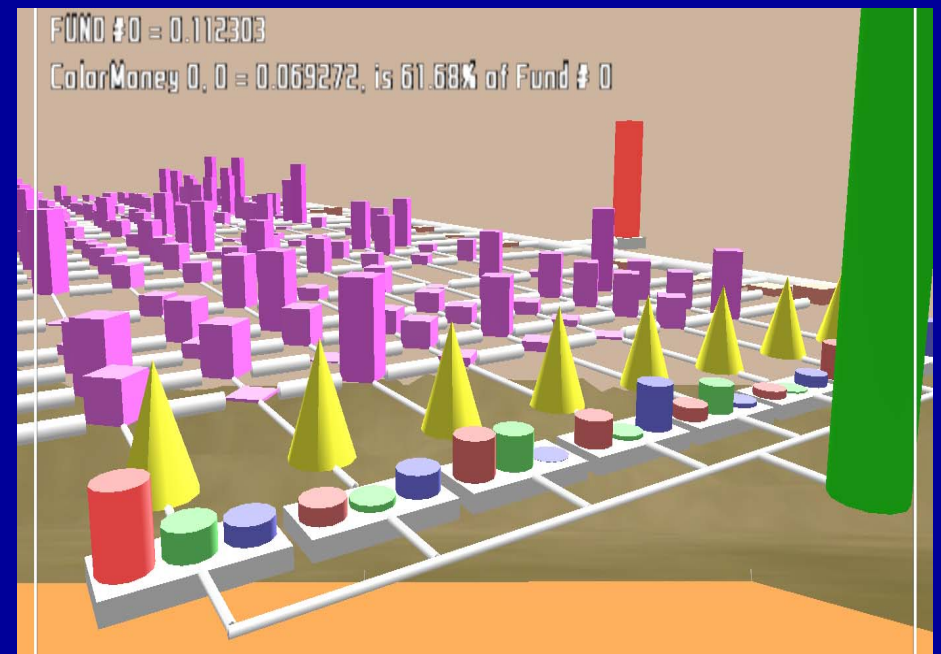
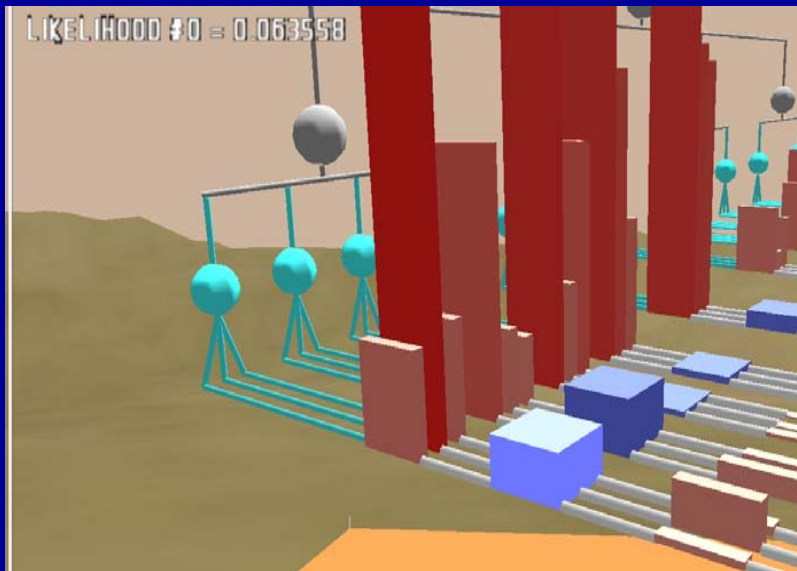


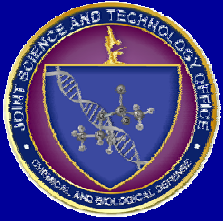
Scientist Serving Pasta



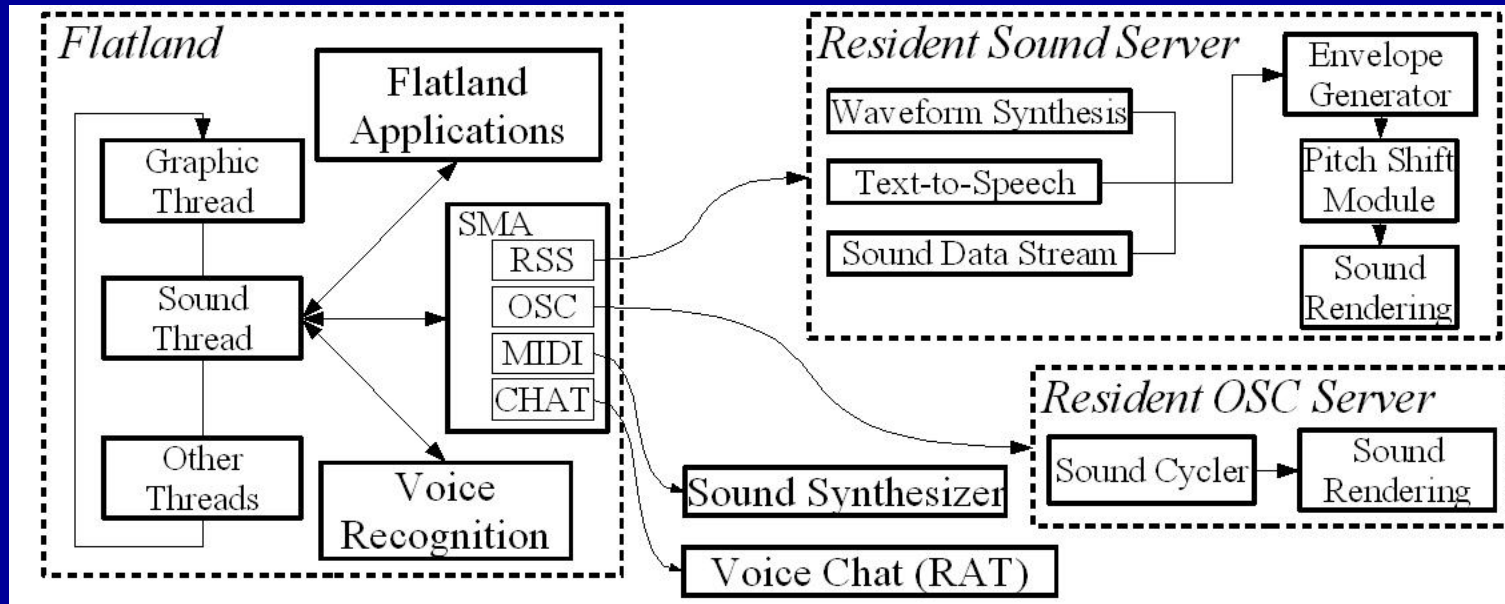


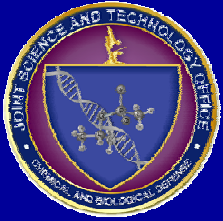
Visualization of Mockup System (1st Generation)



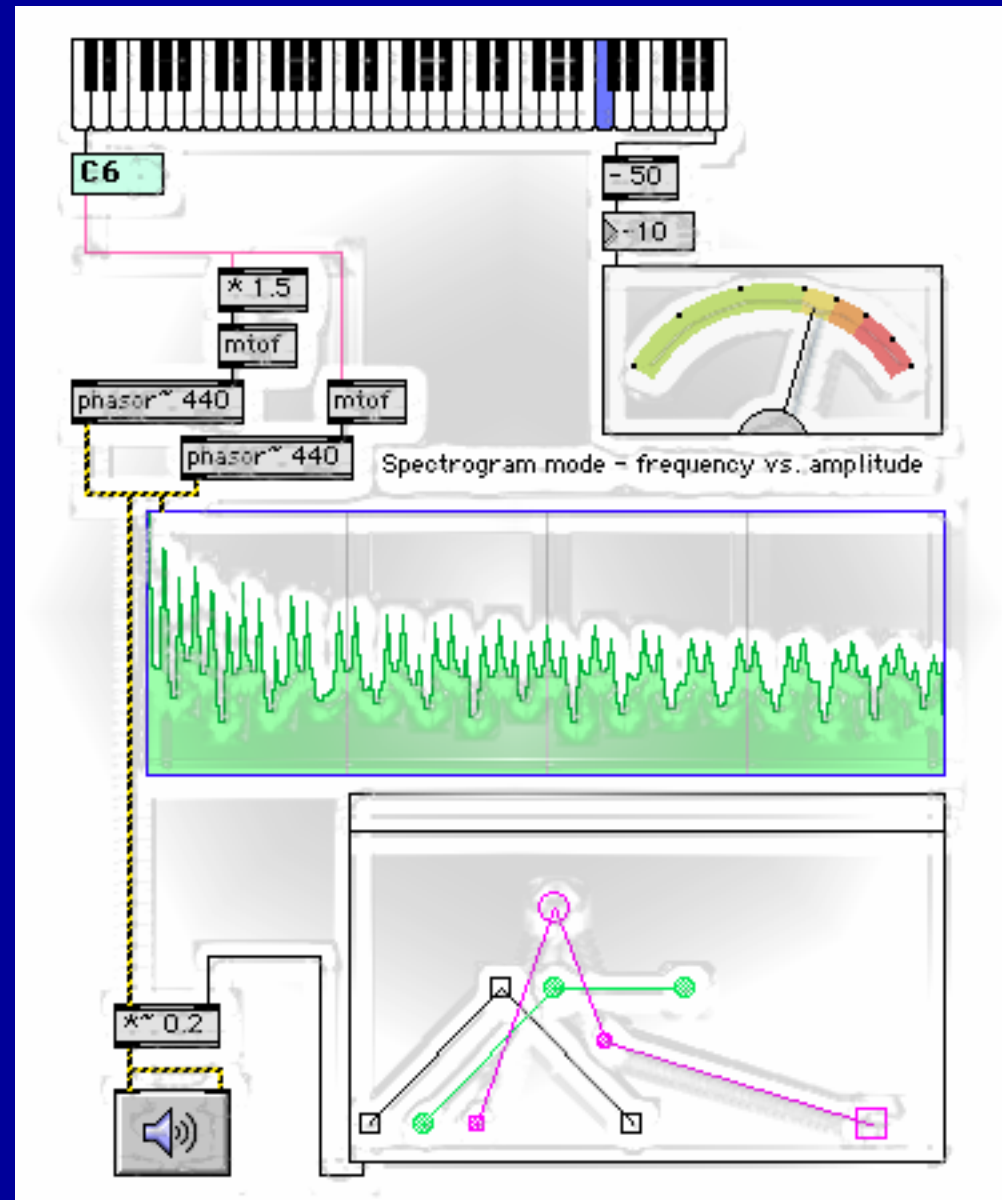


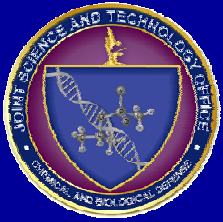
Flatland Sound Services



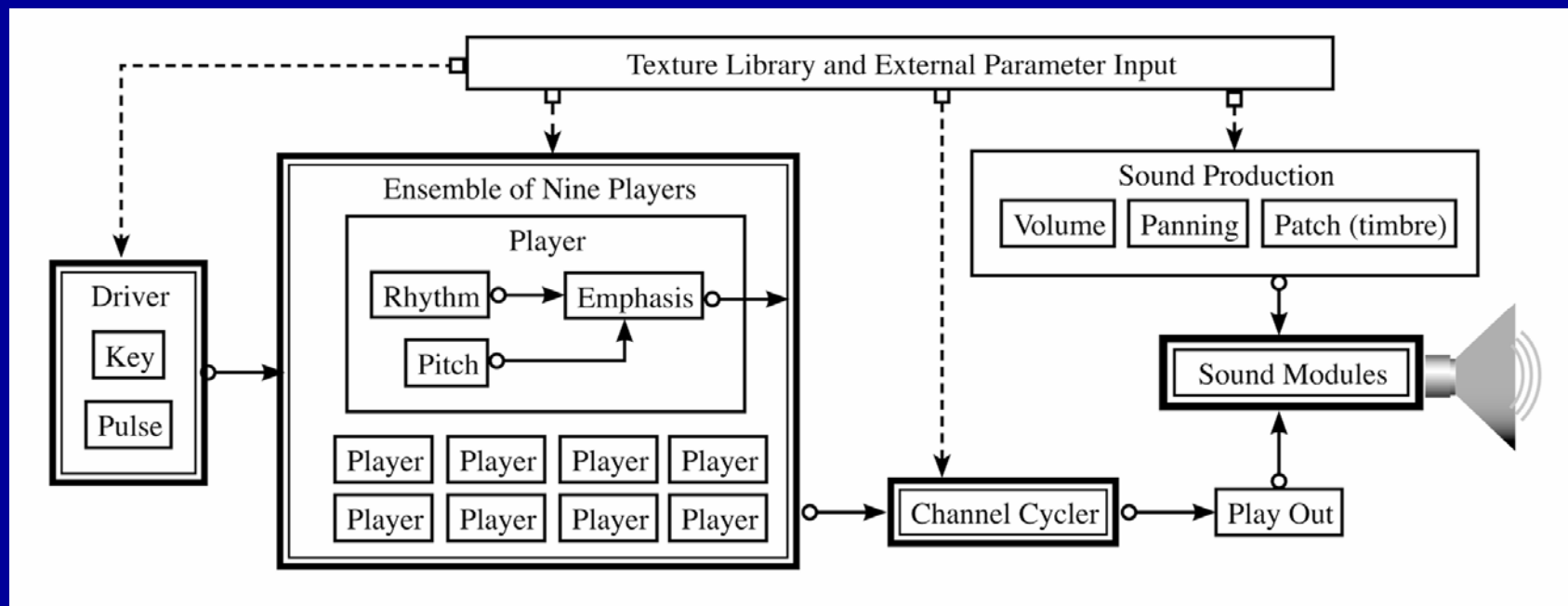


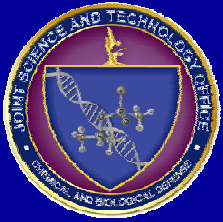
Max/MSP





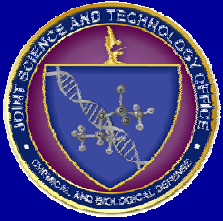
SoundCycler Architecture





Six Music Functions in DST

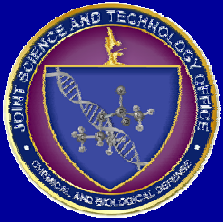
- 1. The music provides an appropriate ambience to the task at hand**
- 2. The music displays user adjustable input values**
- 3. The music provides user activity feedback**
- 4. The music provides cues for orientation in the virtual environment**
- 5. The music characterizes the data**
- 6. The music provides a means to analyze the data**



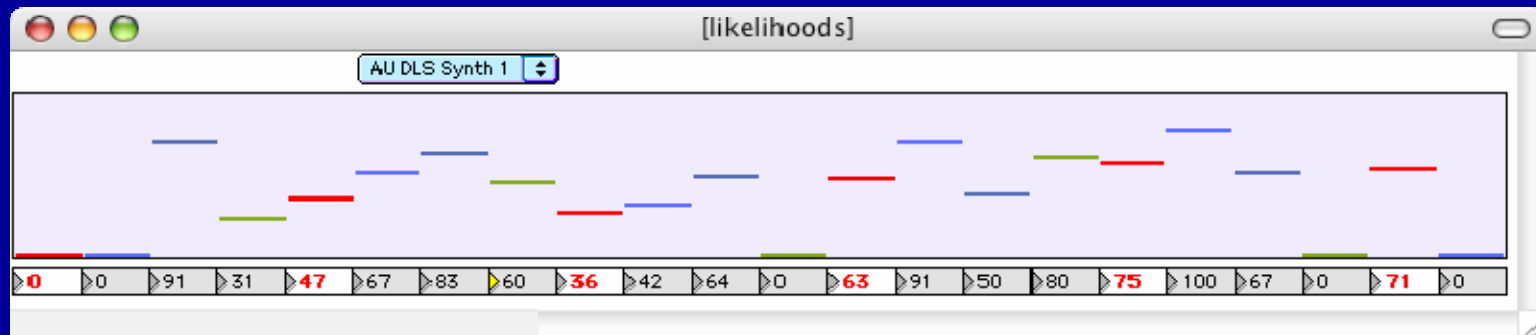
Musically Represented Data

The music represents five classes of data in the DST:

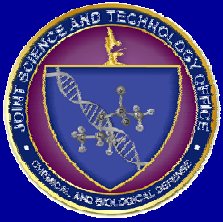
- 1. A twenty-two-element scenario likelihood vector**
- 2. A twenty-two-element differential between the likelihood-consequence vector (need for mitigation) and the after-mitigation consequence**
- 3. Eight funding levels**
- 4. One total funding level**
- 5. Final expected consequence value.**



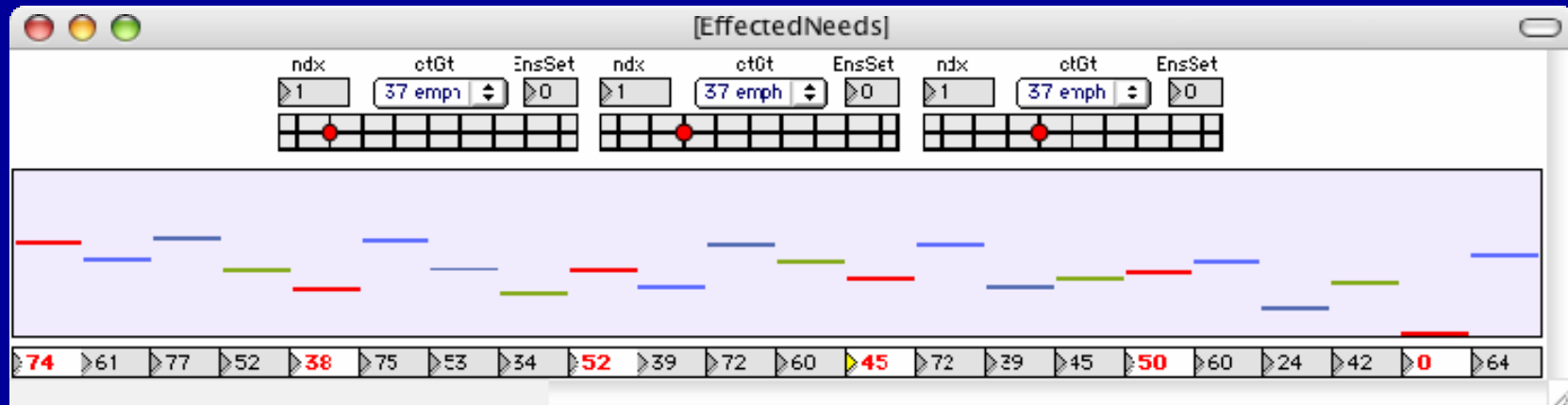
Likelihoods



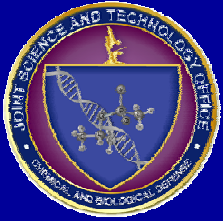
Each horizontal bar represents a likelihood level of a scenario attack within a vector.



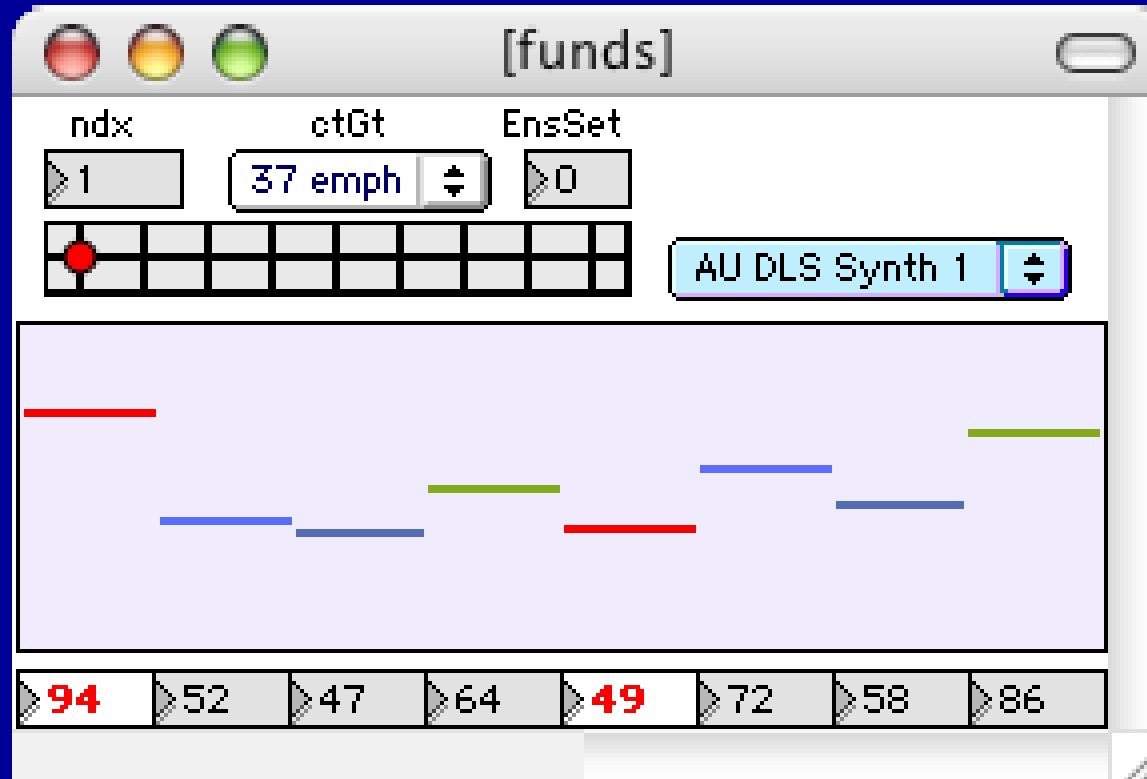
Ratios



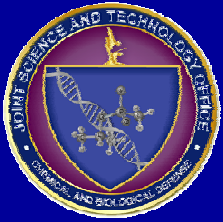
Each horizontal bar represents a ratio difference between consequence-likelihood level and the projected consequence-likelihood after remediation.



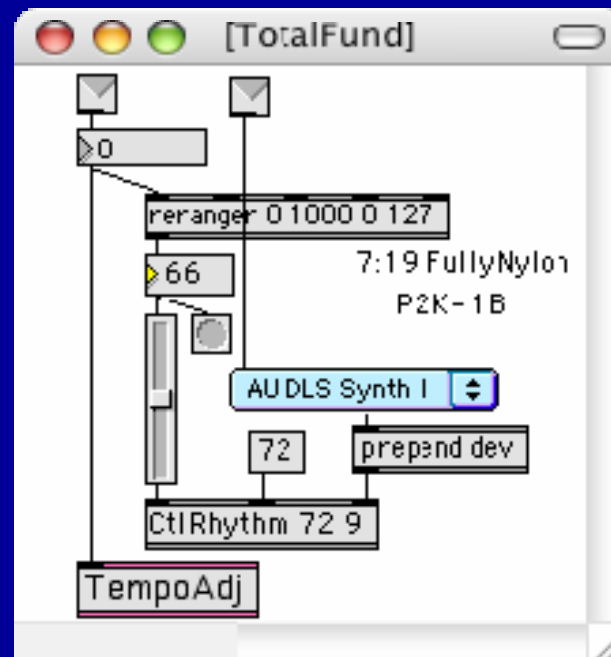
Funding Portfolios



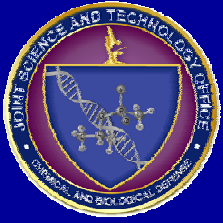
Each horizontal bar represents a funding portfolio amount.



Total Funding Limit



The total funding limit affects tempo.
More money is livelier.

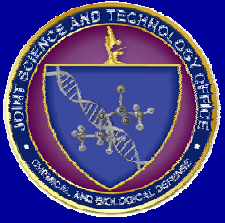


Aggregated Final Expected Consequence

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Greater adverse consequence has more persistent bass line.



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