



# Sound in Games



# **Today's lecture**

**History**

**What is sound?**

**The Psychology of Sound**

# **Today's lecture**

**Methods of & tips for sound design**

**Review & Summery**



**Any video game experience relies on:**

**The visuals**

**The design**

**The audio**



**The overall goal of Sound Design is...**

**...to communicate effectively what the  
gamer needs to experience.**



# History

**Audio was considered post-production**

**It was the programmers' job**

**Simplistic aesthetics**



**Today**

**New hardware and software**

**More space for creativity**

**The producers finally understood**



**What is sound?**



# **Recording and Storing Sounds**

**Sound sample = Movie frame**

**Sampling rate = 44,100 = 24 frame/sec**

**It is a process that duplicates a sound without the need of the original source**



# **Analog & Digital Sounds**

# **Storing digital samples of a sound**

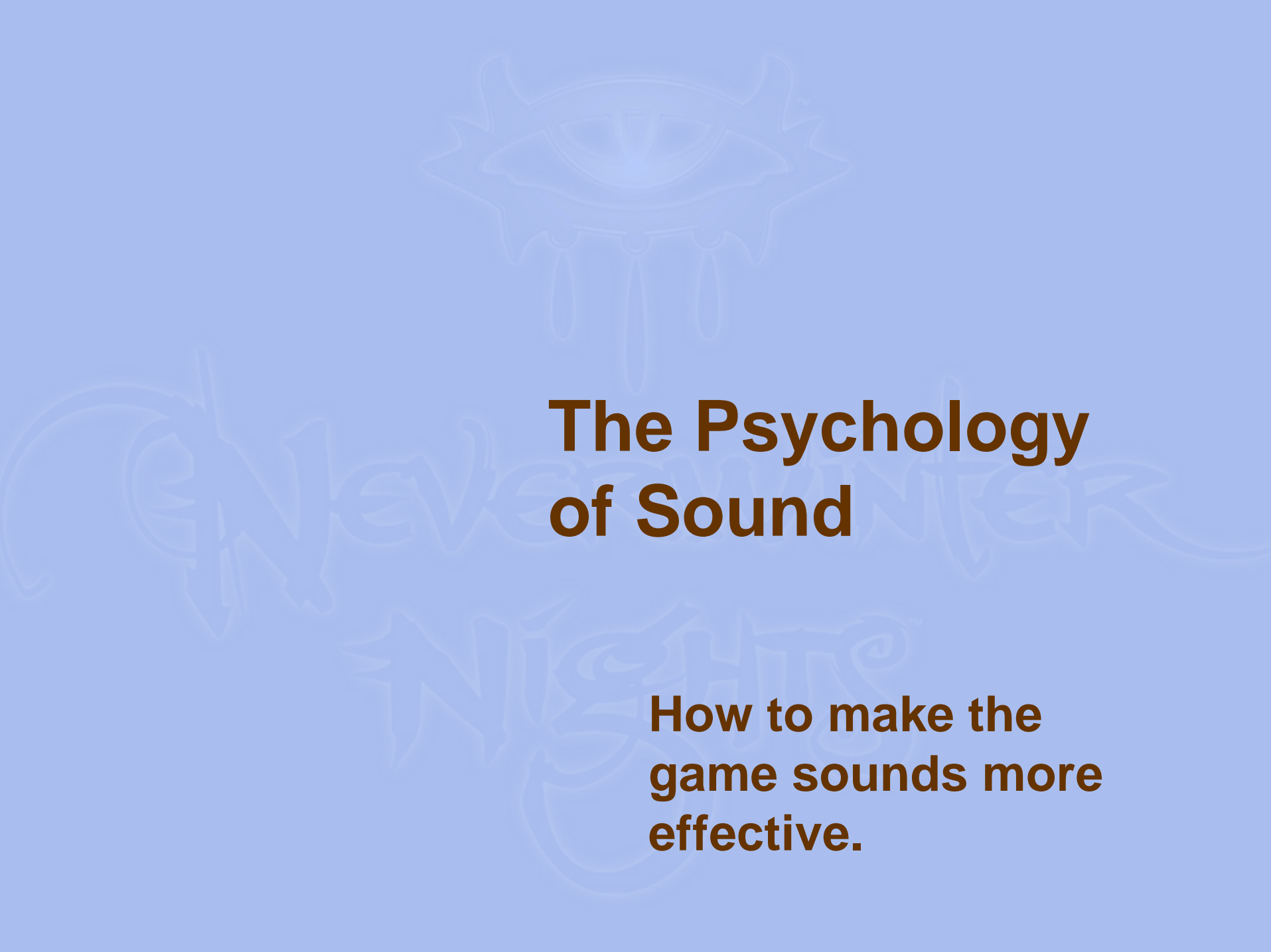
**digital sound file is a method of storing air pressure**

**8-bit digital audio can store 256 discrete air pressure levels**

**16-bit digital audio can store 65536 discrete air pressure levels**

# Storage Requirements for One Minute of Sound

Type:	Mono	Mono	Stereo	Stereo
Resolution:	8 bit	16 bit	8 bit	16 bit
<i>Sampling Rate</i>				
44.1k	2646k	5292k	5292k	10584k
22.05k	1323k	2646k	2646k	5292k
11.025k	661.5k	1323k	1323k	2646k
8k	480k	960k	960k	1920k
7k	420k	840k	840k	1680k
6k	360k	720k	720k	1440k
5k	300k	600k	600k	1200k



# **The Psychology of Sound**

**How to make the  
game sounds more  
effective.**



# **The major elements of sound in games**

**The predominant sound**

**The background sounds**

**The music soundtrack**



**Two key points to concentrate on**

**Creativity**

**Integration**



# **Methods of & tips for sound design**



# **How do I create sound effect?**

**Use a sound effects library**

**Record your own**

**Use audio software to generate effects**

**How do I create music?**

**Exclusively computer generated music**

**Recording from an analogue source**

**MIDI**

**Music libraries & licensed tracks**

# **How to decide on the sounds to use**

**Think of adjectives that describes the subject matter**

**Know how much space is available**

**Know the sound driver or hardware limitations**

# **How to decide on the sounds to use**

**Know the dynamic range of all of the sounds to be used**

**Decide What is the range of the sampling rates to be used**

**Is there going to be intelligible speech? A female voice will usually require a higher sampling rate than a male voice.**

# **Tips for better sound editing results:**

**Start with the absolute best raw materials**

**Edit the sound file before down sampling**

**Experiment with filters, pitch, speed, compression etc.**

**Beware of noise reduction algorithms**



**What would well-designed sounds do?**

**Focus the viewer's attention**

**All audio elements work together**

**No complete silence**



**Questions!**

**Review & Summery**

# **Review & Summery...**

**Audio is a major part of gaming today**

**Aim to immerse the player**

**Technical issues of Sound**



# **Review & Summery...**

**The Psychology of Sound**

**Creativity & Integration**

**Methods of & Tips for sound design**

**Can you design good sound?**

**Best of Luck 😊**