Animation Methodology for Battlefield 3

Tobias Dahl Animation Director

Mikael Högström Lead Animator

AGENDA

- BF3 on a high level
- BF3 from an animation perspective
- New animation technology ANT
- New animation features
- Working as an animator at DICE
- Conclusions
- Fun stuff
- Questions

BF3 on a High Level

Believable

BATTLEFIELD 3 DICE EA

Belivable

BATTLEFIELD 3 DICE EA

BF3 on a High Level

Epic

BATTLEFIELD 3 DICE EA

Epic

BATTLEFIELD 3 DICE EA

Epic

BATTLEFIELD 3 DICE EA

BF3 on a High Level

Physical

BATTLEFIELD 3 DICE EA

Physical

BATTLEFIELD 3 DICE EA

Physical

BATTLEFIELD 3 DICE EA

Animation Direction

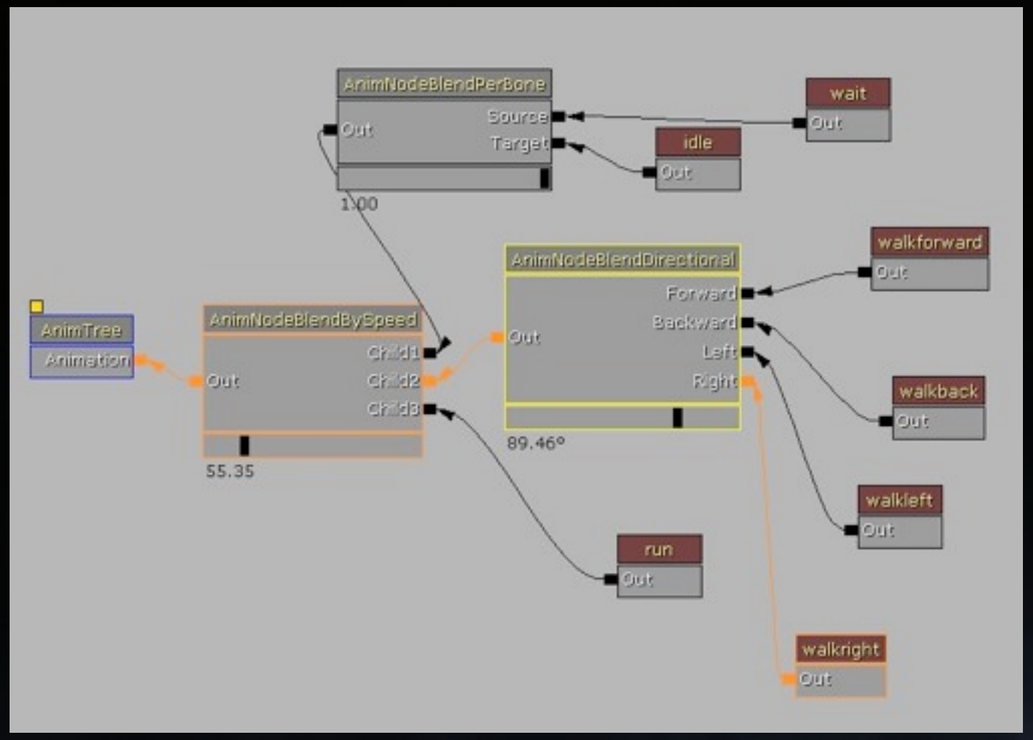
- Physical
- Urgent
- Realistic

BF3 from an Animation Perspective

Everything should (of course) look better than ever seen in any shooter before

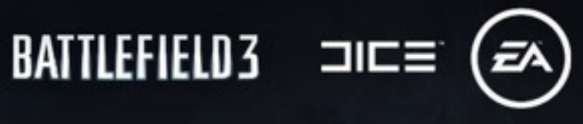
Animation Toolset and Methods

- Switch from Granny to ANT



Animation Toolset and Methods

What is ANT?



Animation Toolset and Methods

BATTLEFIELD 3 DICE EA

Animation Toolset and Methods

BATTLEFIELD 3 DICE EA

BF3 what do we need?

- Realistic Multiplayer animations
- Super realistic AI animations
- Immersive 1p animations with lower body
- Easy AI scripting interface
- Realistic Facial animations
  - 4D scanning, FaceForward
  - Performance Capture
  - Through the gun experience, new weapon spring
- Object animation, Canned destruction, gadgets etc.
- Entity space animation, ground -> vehicle -> ground
- First Person Camera
- Uneven terrain
- Foot planting

- Casting
- Animation prototypes
- IK
- Streaming of animations
- Turn system for AI
- Realtime blending tweaks
- FIFA locomotion for AI
- NBA Street locomotion for MP
- Seamless blending from Gameplay -> Cutscenes ->Gameplay
- 100's of weapons and gadgets
- Etc. Etc. Etc.

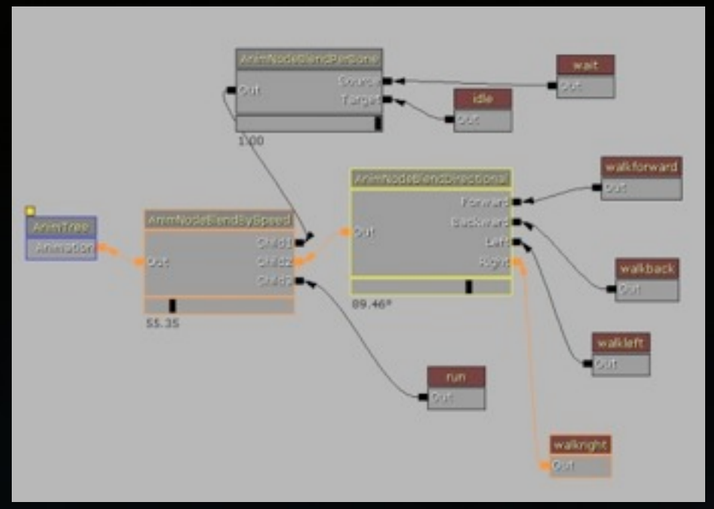
BATTLEFIELD 3 DICE EA

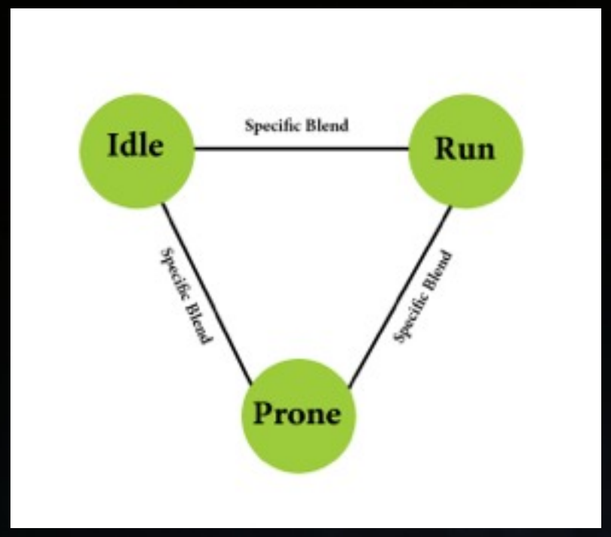
Animation Toolset and Methods

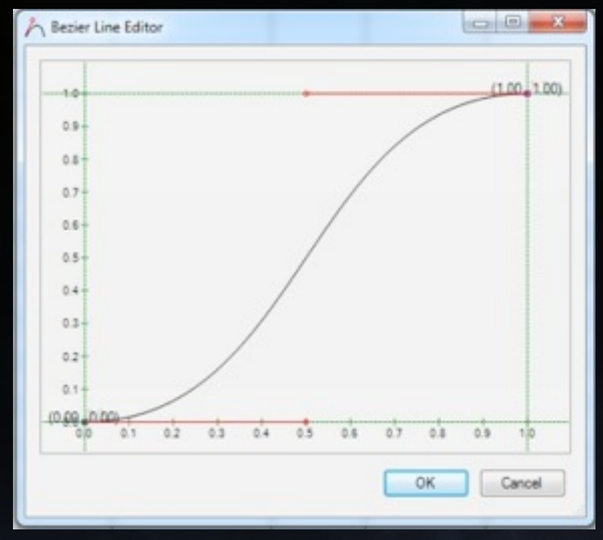
- What methods did we use to achieve our animation goals?
  - Blends
  - Seamlessness
  - Input driven animation
  - Layering
  - Realtime Feedback

Animation Toolset and Methods

- Blends
  - Animators are responsible for all blends in the game
  - Per Joint blending



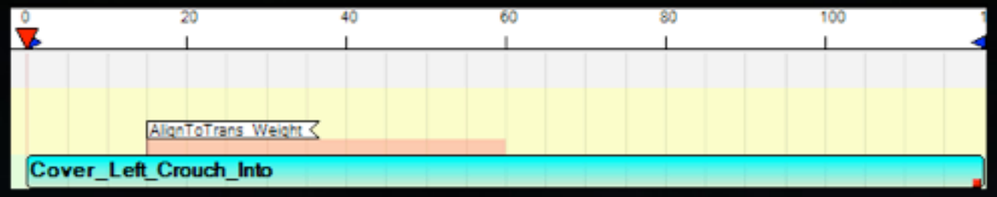


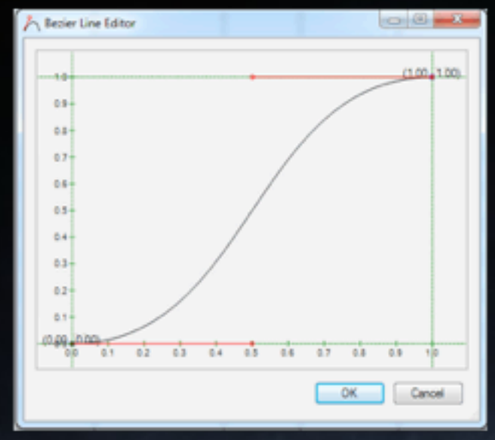


BATTLEFIELD 3 DICE EA

Animation Toolset and Methods

- Seamless
  - Speed is more important than pose
  - Aligning over time is a choice made by the animator





BATTLEFIELD 3 DICE EA

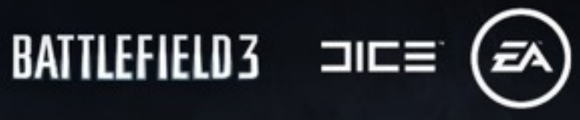
BATTLEFIELD 3 DICE EA

Animation Toolset and Methods

- Input driven animation (Multiplayer/1st Person)
  - Multiplayer = Gameplay over realism

BF3 animation features

WeightShift on direction change



vehicles: 0

ATT 75

31

Gx 1

BF3 Animation Features

Sprint to Stop

BATTLEFIELD 3 DICE EA

MHOGSTROM1
ATT
75
NW
100%
A
5/124
Gx1
R
B

BF3 Animation Features

Input Spam

BATTLEFIELD 3 DICE EA

MHOBSTROM1
ATT 75
NW
100%
31 /124
Gx1

BF3 Animation Features

Weapon Lag

BATTLEFIELD 3 DICE EA

SW
31 /297
Gx3

BF3 Animation Features

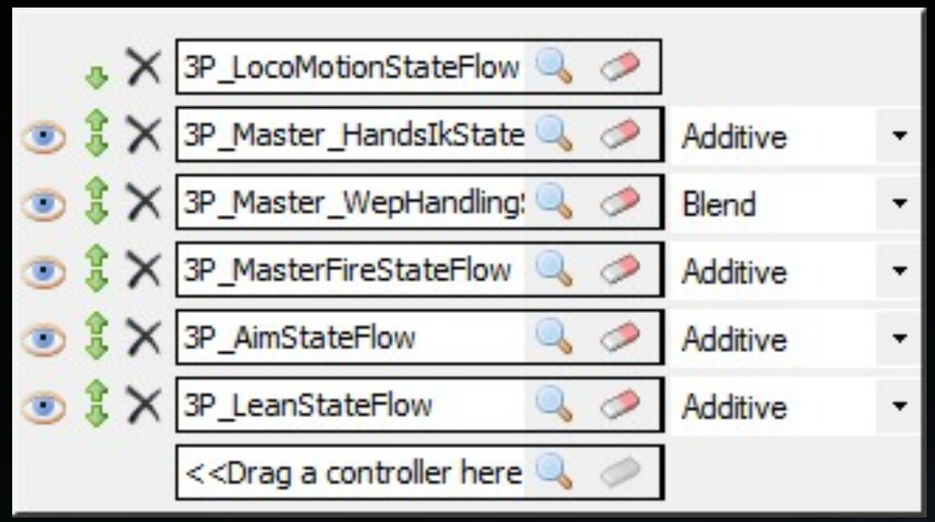
First Person Character with lower body

BATTLEFIELD 3 DICE EA

NE
31
/372
Gx3

Animation Toolset and Methods

- Layering
  - Photoshop style authoring



PS: 108.69 (0)
ctive soldiers/actors: 1/0
ctive vehicles: 0
otal vehicles: 0

94

MHOGSTROM1

ATT 75

E

A

B

100%

31 / 124

Gx1

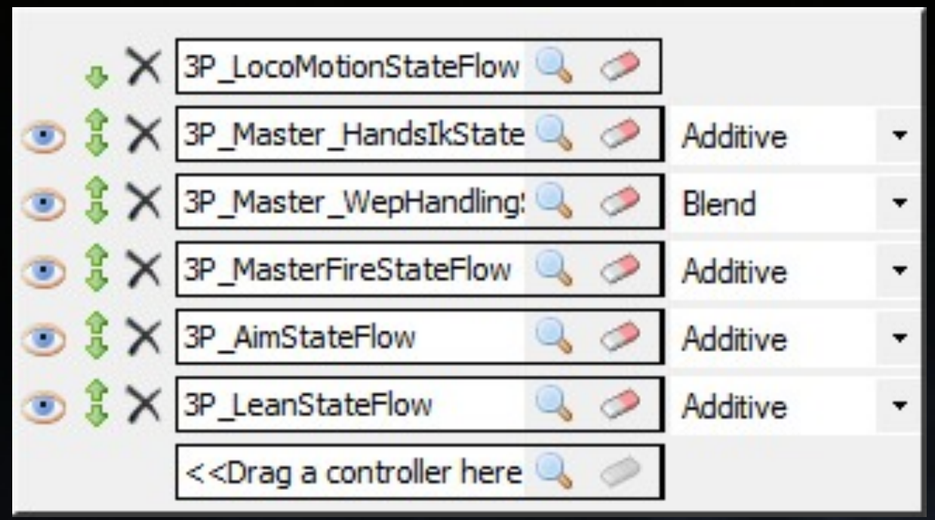
Friday, March 30, 12

FPS: 98.31 (0)
Active soldiers/actors: 1/0
Active vehicles: 0
Total vehicles: 0
78
نانوایی
مکانیک
مغازه
MHOGSTROM1
B
ATT 75
E
100%
31/124
Gx1

FPS: 105.87 (0)
Active soldiers/actors: 1/0
Active vehicles: 0
Total vehicles: 0
95
MHOGSTROM1
B
ATT 75
E
100%
31 /103
Gx1

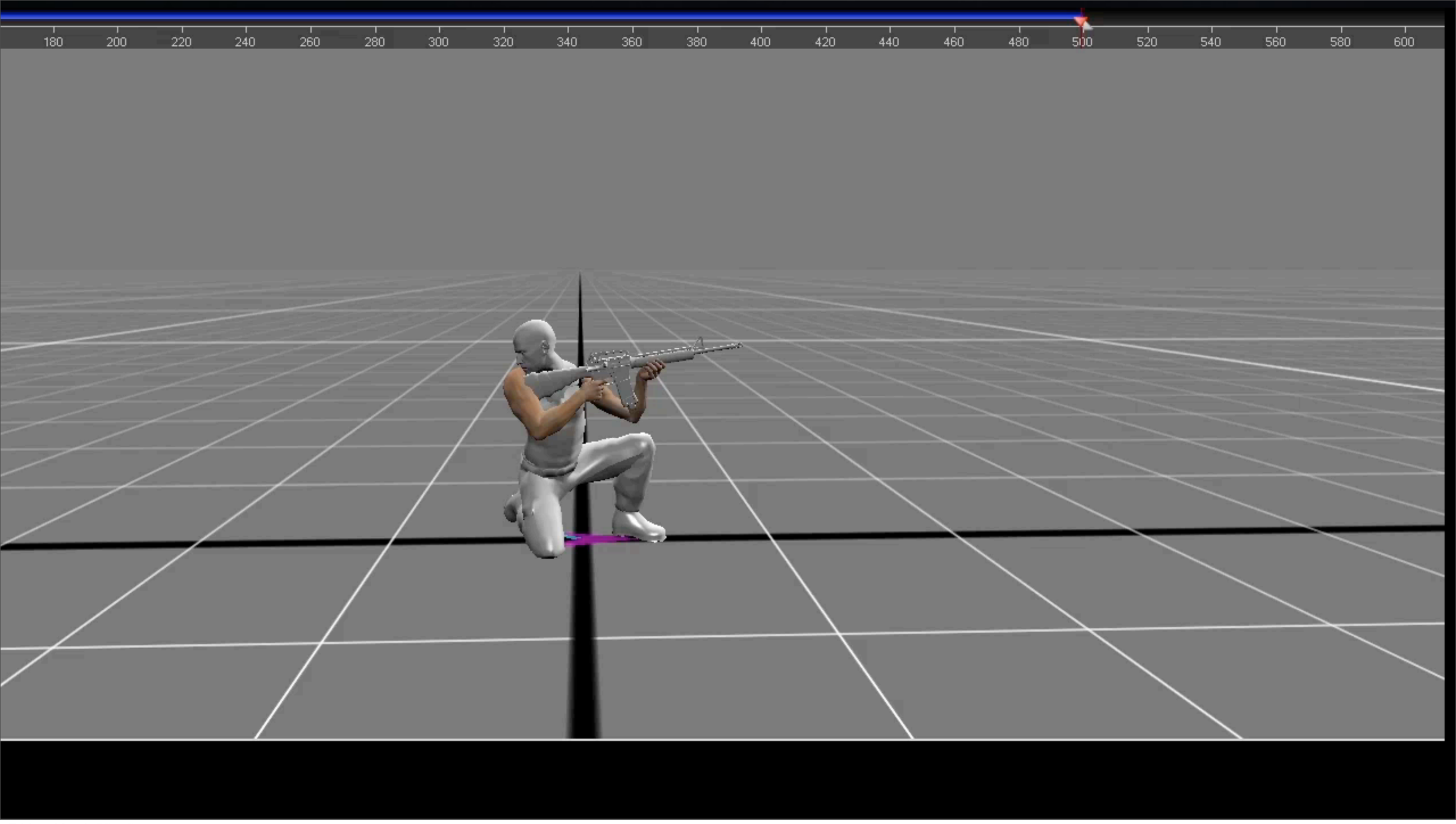
Animation Toolset and Methods

- Layering
  - Seperate UpperBody/LowerBody
  - Great for fast prototyping of features
  - Additative solutions to handle multiple weapons setup



Animation Toolset and Methods

- Realtime Feedback


180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
600

Animation Toolset and Methods

- Most features are implemented by animators
  - Fast prototyping
  - Not destructive to gameplay

AI Movement Scripting

- Easy intuitive way of making the AI move
- Seamless blending into canned animations
- Use metaphors like ”Combat” ”Relaxed” instead of picking animations from long lists

Friday, March 30, 12

Object Animation

- To animate objects like a toy dinosaur or an earthquake
- In-game pre-fab level art objects like vehicles trees etc.

BATTLEFIELD 3 DICE EA

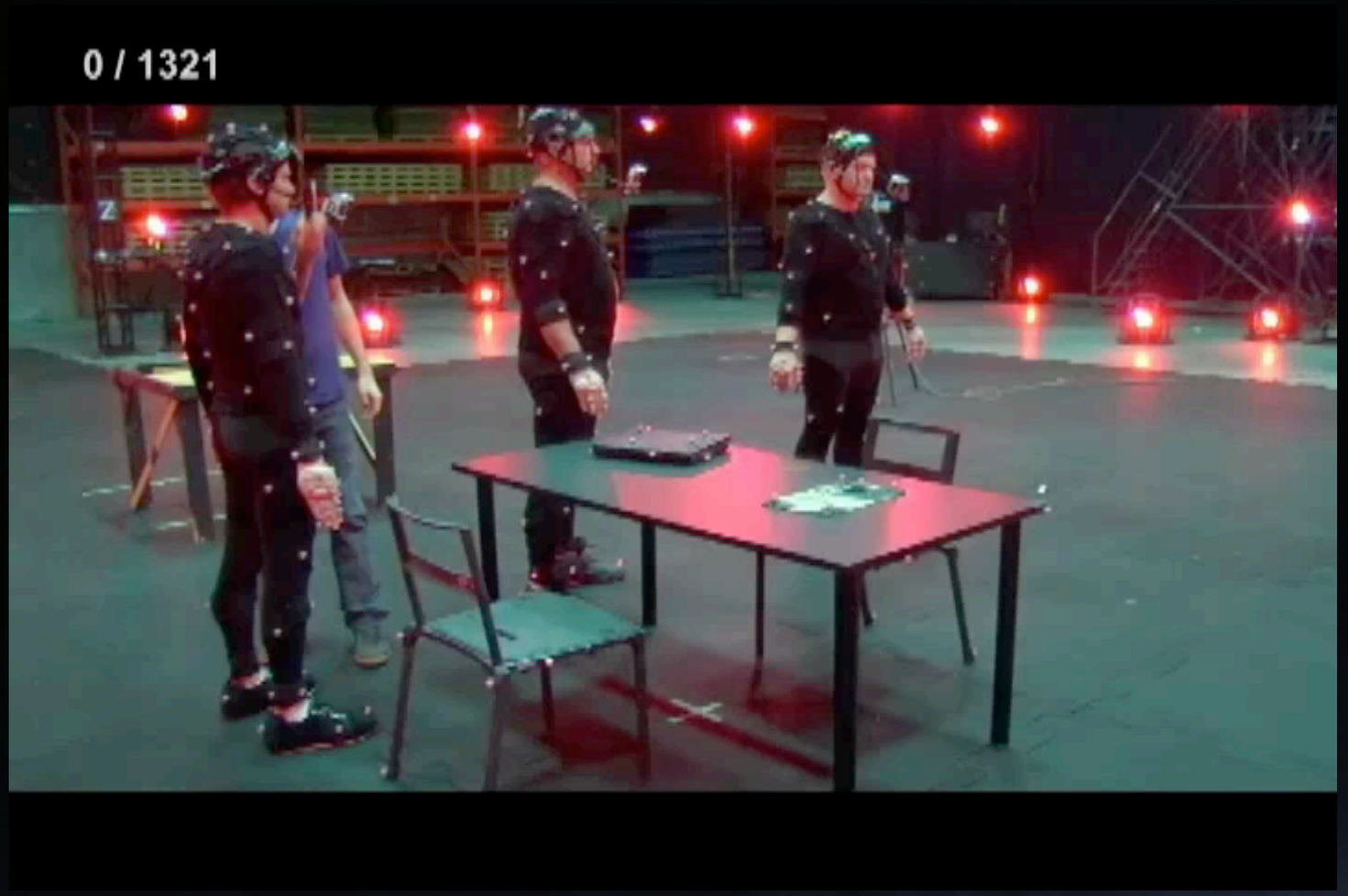
ME_Residential_0
Layer: MeatMarke

Face Forward (4D Scan)

- Realistic facial animation
  - There is nothing more real than reality
  - Real time 3D mesh scanning
  - Real time Diffuse scanning
  - Real time Bump map scanning

BATTLEFIELD 3 DICE EA

Motion Capture Body Data



BATTLEFIELD 3 DICE EA

Face Forward (4D Scan)

BATTLEFIELD 3 DICE EA

Face Forward (4D Scan)

BATTLEFIELD 3 DICE EA

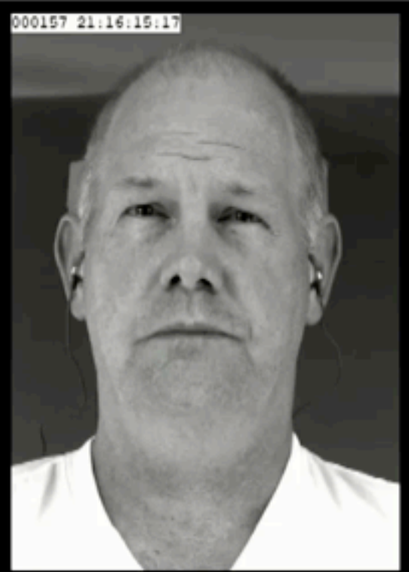
Face Forward (4D Scan)

Face Forward (4D Scan)

BATTLEFIELD 3 DICE EA

5018_5

Gideon



5017_8

Glenn

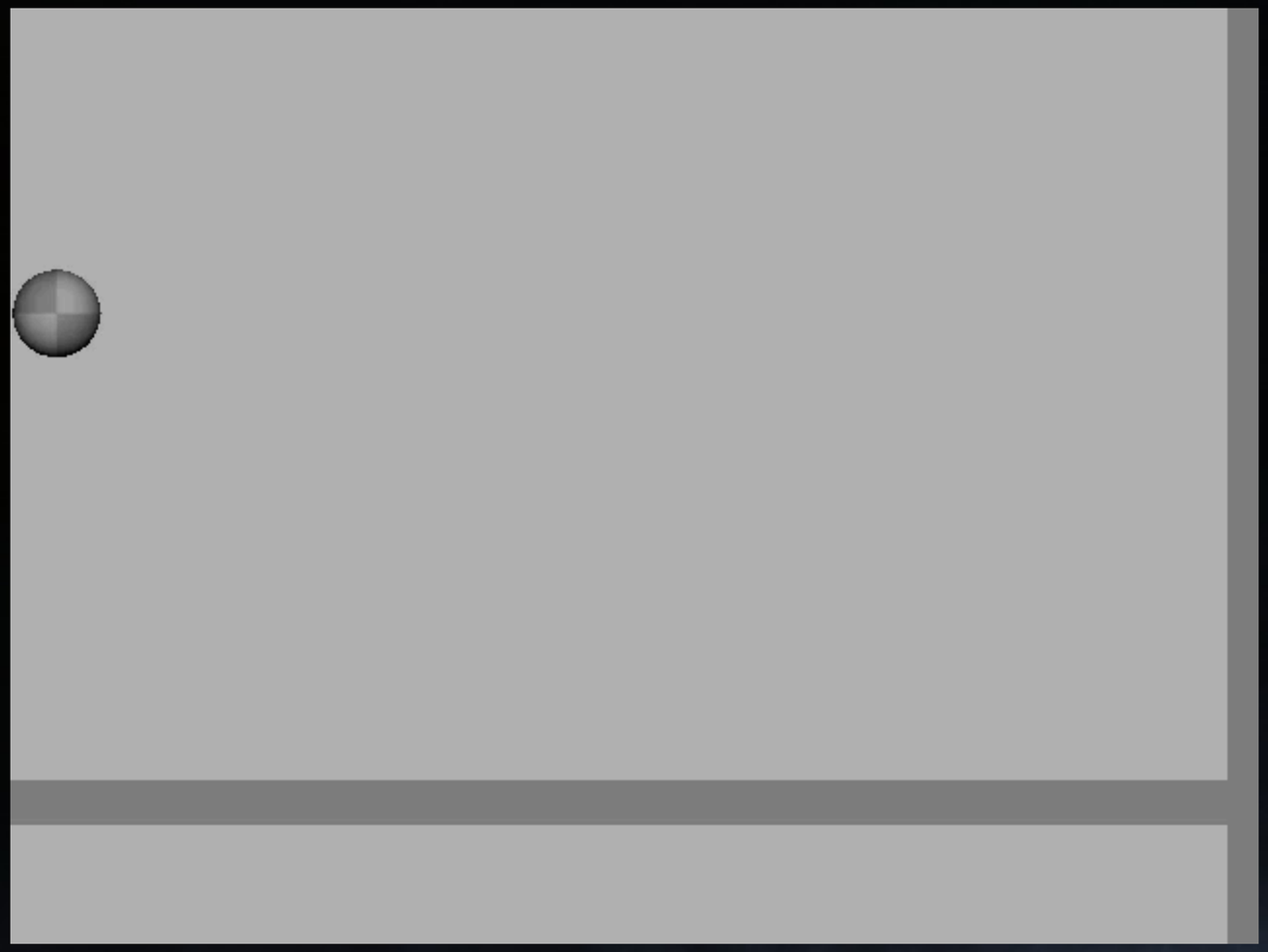
5019_2

Thor

BATTLEFIELD 3

BATTLEFIELD 3 DICE EA

Animators role at DICE



BATTLEFIELD 3 DICE EA

Animators role at DICE

BATTLEFIELD 3 DICE EA

Animators role at DICE

There are no animators at DICE...

...in a traditional sense

BATTLEFIELD 3 DICE EA

Animators role at DICE

- Game animators has moved beyond the traditional animator role
- From the beginning to the end, game makers instead of animators
  - Creating Previz for mocap
  - Planning mocap shoots
  - Directing actors, stunts and working with military advisors
  - Combining and tweaking the data after the Animation Directon

BATTLEFIELD 3 DICE EA

Conclusions

- We are making games, not animations!
- Knowledge of animation principles still important, but directing, clarity, physical etc. Even more important
- A lot more responsibility for the animators than ever before
- More interesting than ever to work as an animator in the game industry
- More fun!

BATTLEFIELD 3 DICE EA

BATTLEFIELD 3 DICE EA

Questions?

Tobias.Dahl@dice.se

Mikael.Hogstrom@dice.se

BATTLEFIELD 3 DICE EA