

I'm pleased to announce the first public release of DART, the Designer's Augmented Reality Toolkit.

We have created DART with the goal of providing a system that allows wide variety of researchers, artists and designers to work with Augmented and Mixed Reality experiences from initial prototyping, to iterative experience testing, and through final deployment. The DART system is built on top of Macromedia Director and consists of a low-level C++ plugin (the DART Xtra) that provides services such as VRPN, marker tracking, and video capture, as well as a suite of behavior scripts written in the Director programming language (Lingo) that represent the components of an AR/MR application such as trackers and sensors, 3D models, video cameras, and action/event messaging. One central design goal was to create a set of AR/MR specific components that could be used by designers and developers following the common Director programming paradigms.

DART is the product of a larger research project, with the aim of understanding the design on AR/MR experiences. In particular, we hope to understand how designers "design" mixed physical/virtual experiences and applications. Therefore, DART is free (assuming you own Macromedia Director) and what we want in return is for folks to share their experiences with us; everything from what they are doing with DART, what works and what does not work (in the system, for their applications, the limits of Director, and so on), and how they think about designing these sorts of experiences. (We are using DART for a variety of applications, from AR manufacturing experiments to AR games/entertainment to MR tours of historic sites. We are also using DART to teach a class on AR Experience Design.)

The distribution consists of the DART Core (the Xtras and DART lingo scripts), a collection of tutorials and samples (including sample media), and documentation.

Some DART Features:

- Full-featured multimedia programming environment
- Powerful 3D Engine (Shockwave 3D)
- Animated Models can be imported from popular programs (e.g. 3D Studio, Maya)
- Live camera for video-mixed AR, supporting cameras via Directshow, Pointgrey and Videre Design APIs
- ARToolkit interface for marker tracking
- VRPN interface for trackers, buttons, analog devices, and distributed shared memory
- Pre-defined virtual object types (animated 3D models, video-based characters, arbitrary scene graphs, audio, animatics)
- Spatialized sound via our OpenAL Xtra (included)

- Havok physics engine used to create objects with realistic physical properties and behaviors
- Global event system that is easily extensible
- Automatic generation of remote "Wizard of Oz" interfaces to be used for prototyping and user testing
- Capture and playback of synchronized camera and tracker data for debugging, experience testing, prototyping, and animation
- Flexible tracker model that allows for easy modification of tracking configurations, the combination of live and synthetic trackers, and the simple fusion of data from multiple trackers
- All behaviors designed as an extensible framework to be edited and modified as necessary

Currently, the DART and OpenAL Xtras are only available for Windows, but we are working on a MacOSX port that we hope to have available soon.

IMPORTANT: Please consider this a "late BETA" release. We have cleaned up the code and made some significant architectural improvements over the summer and early fall, so things are significantly cleaner and more flexible than our previous limited release. While there are probably some bugs remaining in the code, we wanted to get it out to the folks who have been waiting for it. Our group is traveling a lot over the next month (to the Presence Workshop, the ACM UIST and the IEEE/ACM ISMAR conferences), so waiting any longer would have meant delaying the release till mid-November. We will try to keep in email contact while traveling, to answer questions and fix bugs, but communication may be sporadic at times.

For those concerned about licenses, our license is included in all the DART casts. The high level summary is that DART is released under a public license with the intent that you are free to use it and create any derivative works you want (which is the point of a toolkit, after all), and do what you want with those derivative works, but that you may not sell DART itself (or small changes to it). Our goal is to keep DART free, prevent people from profiting from or restrict the distribution of our work, but not limit what you do with the AR/MR applications that they create with DART.

For more information, including download instructions and pointers to our mailing lists and collaborative web site (the DART Swiki), please visit <http://www.gvu.gatech.edu/dart>