



## STUDENT SUMMER INTERNSHIPS – 2008 VISUAL ANALYTICS / AUGMENTED REALITY

### 3D Virtual and Mixed Environments Information Technology Division Naval Research Laboratory (NRL) Washington, DC

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NRL is the premier scientific research laboratory within the Department of Defense, with over 800 staff members holding a PhD. The research staff is internationally recognized with numerous prestigious awards, including a Nobel Prize. The Information Technology Division is one of NRL's largest and includes a well-equipped lab to perform basic and applied research in augmented reality and virtual environments theory, techniques, and applications. Recent work in these areas has focused on visual representations of 3D and 2D data as well as perceptual user studies; some projects have led to award-winning papers. We have begun to explore the emerging area of visual analytics and perform research into applications of GPUs in visualization, uncertainty modeling and representation, as well as user studies related to these topics.

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Summer tasks will be based on project requirements and student interest. Current research thrusts include:

- Visual analytics / Scientific visualization / Information visualization  
Areas of focus: large-scale visualization and applications of GPUs
- Mobile outdoor augmented reality
- Evaluation of AR systems and devices

We seek graduate students or unusually gifted junior/senior undergraduates with strong backgrounds in these areas. Strong programming skills in C++ or C are required. Expertise with Linux, Windows, Cygwin, OpenGL, GPGPU, or Open Scene Graph is useful for certain projects. Scholastic experience with visual analytics or visualization, AR/VE, computer graphics, HCI, or closely related fields is mandatory.

Our visual analytics equipment includes three PC visualization clusters with six-tile display walls, tracking and interaction devices, a 3D spatial audio server, and a 160-MB SGI Altix 16-node server. Our Mobile AR Lab includes: wearable mobile AR backpacks (computers, displays, interaction devices, and tracking systems), optical and video-based see-through head-mounted displays, tracking hardware using technologies such as computer vision, GPS, inertial, and ultrasonic sensors, and a van for vehicle-based applications.

Unfortunately, due to current DoD procedures, we are able to consider only applicants who hold U.S. citizenship or permanent residency status (green card). All applicants **MUST** indicate their citizenship status in their CV or in a cover letter. NRL is not easily accessible by public transportation, so we recommend interns have an automobile available. Interns have found local housing without much difficulty.

Send resumes (PDF preferred) to <[interns@ait.nrl.navy.mil](mailto:interns@ait.nrl.navy.mil)>. For more details about our group, see <<http://www.ait.nrl.navy.mil/3dvmel/>>. Questions may be directed to Mark A. Livingston, Ph.D. at <[mark.livingston@nrl.navy.mil](mailto:mark.livingston@nrl.navy.mil)>. Resumes will be accepted until positions are filled.