



## UCF Synthetic Reality Lab

# Undergraduate/Graduate Research Assistantship Opportunities

### Overview

The Synthetic Reality Lab (SREAL) offers research assistantships (variable length) for undergraduates and graduate students in Human-Computer Interaction, Computer Science, Psychology, and related degrees. A multidisciplinary research laboratory affiliated with the School of Modeling, Simulation and Training (SMST), the College of Nursing (CON), and the Department of Computer Science (CS) at the University of Central Florida (UCF), the SREAL hosts leading academic researchers and students in the fields of augmented reality (AR) and virtual reality (VR).

Research assistants will join a team of faculty, research staff, and students focusing on different aspects of interactive AR/VR experiences. Information about the SREAL's recent research can be found on our website (see link below).

### The Synthetic Reality Laboratory (SREAL)

SREAL (pronounced "Surreal") is a research laboratory at the University of Central Florida. The SREAL team consists of faculty researchers, postdoctoral scholars (postdocs), affiliated faculty members, software developers, PhD students, artists (modelers/animators), interactors (digital puppeteers mostly associated with the TeachLivE project), undergraduate research assistants and a network of campus and external (e.g., other university) collaborators, both faculty members and students.

The laboratory is housed in the Central Florida Research Park's Partnership III Building. The lab space consists of over 7,000 square feet of experimental and office space. The lab space is utilized for a variety of purposes including human surrogate research (e.g., virtual agents/avatars and physical-virtual humans); virtual/augmented/mixed reality research in general; interactive training using virtual agents/avatars technology; developing cultural heritage and STEM experiences; human motion capture; electro-mechanical prototyping ("maker space"); group meetings/discussion; and communal discussion/relaxation.

SREAL is part of several larger UCF entities, most notably the Institute for Simulation and Training (IST), which houses it, and the Department of Computer Science, which is the home department of most of SREAL's students.

Further information:

1. Laboratory website: <https://sreal.ucf.edu>
2. Research focus and related work: <https://sreal.ucf.edu/publications/>
3. SREAL faculty and students: <https://sreal.ucf.edu/people/>

### **Assistantship Purpose**

SREAL offers select **interdisciplinary undergraduate/graduate research assistantships** for creative and technical students wishing to pursue academic/industry careers in AR, VR, simulation, interactive media and applied research fields. SREAL aims to create compelling AR/VR research prototypes and evaluate their effectiveness in the scope of basic and applied research.

### **Eligibility and Remarks**

Candidates for an undergraduate research assistant position must be enrolled as a student at UCF. Candidates for a graduate research assistant position must be enrolled or have been admitted as a student at UCF. Individuals who are interested in a graduate research assistant position but have not yet applied or been admitted to UCF are free to contact us with expressions of interest, and we will respond if possible and appropriate, however in most cases there is little we can do to influence UCF admissions. See below for more information.

Ideal candidates for an undergraduate research assistantship will be in the early or mid stages of their BSc, and should have a good idea of their general direction and topics, but should also have room for improvement or redirection toward topics deemed suitable for project or individual academic goals. Ideal candidates for a graduate research assistantship will be in the late stages of their BSc or MSc, should be PhD intending, and should have a keen interest in pursuing AR/VR research. The SREAL welcomes applicants from a broad range of disciplines including VR, AR, 3D user interfaces, human-computer interaction, wearable computing, social informatics, information technology, cognitive science, and related fields.

You may need a **visa**. If you are an international student not currently studying in the U.S., you may need a U.S. visa (e.g., F1, J1) in order to participate in this program. Upon being selected to the program, our Human Resources department will contact you in regards to the forms and additional information necessary for obtaining the required visa.

This would typically be a **paid research assistantship**. For such paid assistantships, we will provide everything you need for your research at our laboratory, including administrative and research infrastructure (e.g., lab and office space, phone, computer, VR/AR equipment, access, email) to support you in your work. For graduate students, we will typically cover your university tuition.

Students will be advised/co-advised and mentored during their assistantship both in their research and their academic program. Depending on the circumstances, the advisor might be the same person, or might be two different people. Presently, the possible research advisors and mentors include Prof. Gerd Bruder, Prof. Charles Hughes, and Prof. Gregory Welch, as well as affiliated SREAL faculty and research staff. The possible academic advisors include Prof. Gregory Welch, Prof. Charles Hughes, and in some circumstances Prof. Gerd Bruder.

### **Lab Culture**

Our lab is very supportive and even familial. We are all committed to our research, and work hard together, but we have fun and adventure in doing so. For new student research assistants, we will provide appropriate mentoring and guidance, with the expectation that in time the student will grow to become a thought/action leader in their own right. At that point we generally provide as much support as possible to carry out the student's research vision, usually shaped and conditioned by our sponsored research needs and other considerations. If you are interested in first-hand experience in the lab, we will attempt to connect you to past or current students, for a private conversation.

### **Application Process for \*Undergraduate Research Assistants\***

To apply for an undergraduate research assistantship, please submit the following two documents. All submissions should be prepared in IEEE Computer Society VGTC format<sup>2</sup> and submitted as a PDF. If you are a LaTeX user, feel free to use the Overleaf template<sup>3</sup>. Please note that you need to be enrolled as a student at UCF in order to apply for an undergraduate research assistant position.

1. **Research proposal** (usually 1-2 pages): This proposal should clearly state your interests related to the aforementioned research fields covered at SREAL. Feel free to propose and discuss specific research you would like to pursue at SREAL. Please describe how the proposed research fits into and advances research in AR/VR or related fields, and report on your progress so far as well as your intended progress during the assistantship at SREAL. You should further outline the synergies that you see between your own interests

<sup>2</sup> IEEE VGTC format: <http://junctionpublishing.org/vgtc/Tasks/camera.html>

<sup>3</sup> Overleaf: <https://www.overleaf.com/latex/templates/ieee-tvcg-conference-style-template/htqfqtgkvcqf>

and the research performed at SREAL (see previous publications<sup>4</sup>); please discuss in some detail *at least one* (!) of our publications within the last two years and describe how your skills would align with this research. Please include a timeline in your proposal, stating your preferred start date and end date, e.g., based on your expected graduation.

2. **Curriculum Vitae** (no page limit)

Please submit both documents together (in one email) to **bruder@ucf.edu**

Note that we have **no regular deadlines** for undergraduate research assistantship applications. Please submit your application when you feel that it is ready.

Before starting this process, feel free to send us a brief preliminary email to determine whether or not it makes sense to do a full application. Please make sure that the email includes convincing information that would be expanded upon in the full application, otherwise we are likely to respond negatively.

### **Application Process for \*Graduate Research Assistants\***

To apply for a graduate research assistantship at SREAL, please note that there are two parts to this process:

1. Admission into the MSc/PhD program at UCF: If you are a Computer Science major, you can find the specific requirements for applications at UCF for a MSc here<sup>5</sup> and for a PhD here<sup>6</sup>. Find the requirements for a Modeling & Simulation major at UCF here<sup>7</sup>. If you are pursuing a different degree, please consult the corresponding handbook and make sure to follow the application deadlines. Please note that we at SREAL are not handling the admission process at UCF and have limited influence over the outcome. We are only able to hire you as a graduate research assistant *\*after\** you have been admitted into the MSc/PhD program at UCF.
2. Application at SREAL: If you have been accepted into the MSc/PhD program, you may apply for a graduate research assistant position at SREAL. If you are pursuing a MSc/PhD degree and are looking for a graduate advisor, feel free to reach out to us as well.

<sup>4</sup> SREAL Publications: <https://sreal.ucf.edu/publications/>

<sup>5</sup> Computer Science MSc degree: <https://www.cs.ucf.edu/CS/masters.php>

<sup>6</sup> Computer Science PhD degree: <https://www.cs.ucf.edu/CS/phd.php>

<sup>7</sup> Modeling & Simulation MSc/PhD degree: <https://msggrad.ist.ucf.edu>

For the application at SREAL, please submit the following two documents. All submissions should be prepared in IEEE Computer Society VGTC format<sup>8</sup> and submitted as a PDF. If you are a LaTeX user, feel free to use the Overleaf template<sup>9</sup>.

3. Research proposal (usually 4 pages): This proposal must clearly state your interests related to the aforementioned research fields covered at SREAL. Feel free to propose and discuss specific research you would like to pursue at SREAL. Please describe how the proposed research fits into and advances research in AR/VR or related fields, and report on your progress so far as well as your intended progress at SREAL. You should further outline the synergies that you see between your own interests and the research performed at SREAL (see previous publications<sup>10</sup>); please discuss in some detail at least one (!) of our publications within the last two years and describe how your skills would align with this research. Please include your preferred start date in the proposal.
4. Curriculum Vitae (no page limit)

Please submit both documents together (in one email) to **bruder@ucf.edu**

Note that we at SREAL have **no regular deadlines** for graduate research assistantship applications. Please submit your application when you feel that it is ready. However, please note that UCF has strict regular deadlines for the admission process into the MSc/PhD programs.

Before starting this process, feel free to send us a brief preliminary email to determine whether or not it makes sense to do a full application. Please make sure that the email includes convincing information that would be expanded upon in the full application, otherwise we are likely to respond negatively.

## Contact

For questions related to a potential undergraduate research assistantship at SREAL, feel free to contact Prof. Gerd Bruder (bruder@ucf.edu). For questions related to a potential graduate research assistantship at SREAL, feel free to contact Prof. Greg Welch (welch@ucf.edu) or Prof. Charles Hughes (ceh@cs.ucf.edu).

<sup>8</sup> IEEE VGTC format: <http://junctionpublishing.org/vgtc/Tasks/camera.html>

<sup>9</sup> Overleaf: <https://www.overleaf.com/latex/templates/ieee-tvcg-conference-style-template/htqfqtgkvcqf>

<sup>10</sup> SREAL Publications: <https://sreal.ucf.edu/publications/>

Lead Investigators and Advisors:

1. Prof. Gerd Bruder: <https://sreal.ucf.edu/people/bruder/>
2. Prof. Charles Hughes: <https://sreal.ucf.edu/people/hughes/>
3. Prof. Gregory Welch: <https://sreal.ucf.edu/people/welch/>

### **Our Address**

3100 Technology Parkway  
Orlando, Florida 32826  
United States of America

The Synthetic Reality Lab (SREAL) is located in the Partnership III building of the Institute for Simulation and Training (IST) in the Research Park south of the main campus of the University of Central Florida (UCF). It is located approximately 35 minutes from the Orlando Airport (MCO).

The general business hours for the IST are 7:00 am to 5:00 pm, Monday through Friday. Work days are usually 8 hours per day. Students applying to a research internship are usually expected to work full-time (40 hours per week). IST is open to SREAL members 24/7.

### **Where to Live**

There are a variety of living arrangements available to you in Orlando. Below is a list of resources that may assist you with locating living arrangements during your visit.

Please note that UCF/IST does not officially endorse any of the options listed below, but simply offers the information as a courtesy.

1. <https://www.airbnb.com>
2. <http://www.homestay.com>
3. <http://www.padmapper.com>
4. <http://orlando.craigslist.org>
5. <http://www.roommates.com>
6. <http://www.extendedstayamerica.com>
7. <https://hotpads.com>

### **Getting Around UCF/Orlando**

Although Orlando has a public transportation system, it should be noted that Orlando is classified by many as a driving city. Having reliable transportation to travel around the UCF campus, Orlando city, and surrounding areas is very beneficial.

You can find additional information on bus passes (e.g., Lynx) and schedules at:

1. <https://www.golynx.com>
2. <http://maps.google.com>

Additionally, it is possible to use Uber (<http://www.uber.com>) and Lyft (<http://www.lyft.com>) in Orlando and the Central Florida area.

### **Dress Code**

The SREAL dress code is business casual: Jeans (not torn), khakis, polo shirts, walking shorts, tennis shoes, t-shirts, dresses, skirts, and similar.