Jennifer C. Cremer

Education

University of Florida, Herbert Wertheim College of Engineering — *Gainesville, FL*

Ph.D, Computer Graphics & Visualization — Expected 2026

Relevant Courses: Advanced Computer Graphics, Multimodal Data Mining

MSc, Computer Science — 2018 – 2021

Relevant Courses: Concurrent Programming, Computer Graphics, Computational Geometric Modeling, Information Visualization

BS, Digital Arts & Science — 2014 – 2018

External focus in Applied Physics: Statics, Thermodynamics, Fluid Mechanics

Relevant Courses: Human-Computer Interaction, Fundamentals of Computer Graphics, Design Patterns, Obj-Oriented Programming, Theory & Practice of Multimedia Production, 3D Modeling & Animation, Operating Systems

Research

Graduate Student Researcher — *2018 – Present*

Scan2Twin – Jörg Peters: *SurfLab &* Eric Ragan: *INDIE Lab, Dept. of CISE, UF*

- Refactored orphaned VR software to adhere to proper data handling, object-oriented paradigms, and modern UX guidelines
- Developed C++/OpenGL software for virtual reality (VR) to voxelate medical images and trace out vessels as B-spline curves
- Converted project base from C++/OpenGL/OpenVR to the Unity3D Engine and C#
- Developed VR toolsets for spatial understanding and interactive modeling of voxel data
- Demonstrating functionality and visualization prototypes of anatomy to surgical teams
- Managing project definitions and scope with collaborators in the Colorectal Oncology Team at UF Health: Shands
- Integrated Segment Anything using PyTorch into Unity to assist in volumetric noise reduction
- Integrated responsive shrink-wrapping methods to transform voxel clouds into discrete meshes
- Designed and conducted a Mixed-Factorial User Study on the impacts of modeling experience on efficiency and accuracy of mesh editing in VR and desktop interfaces
- Investigating capabilities of Skeleton Extraction methods using Pytorch to improve meshing process
- Designing a Mixed-Factorial User Study exploring the aptitude of various Volumetric Rendering techniques given different investigative tasks

Redirected Walking Study – Brett Benda: *INDIE Lab, Dept. of CISE, UF* — 2024

- Assisted execution and analysis of a Between-Subject VR Study investigating impacts of technique awareness on translation gain detection and thresholds

Undergraduate Researcher — 2017 - 2018

TIPS – Jörg Peters: *SurfLab*

- Developed a custom file format to store mesh data as well as scene hierarchy relationships
- Created a Python script for Blender to parse custom files of mesh data and object hierarchy into soft-body surfaces with spring constraints
- Developed user-report interfaces for surgical simulation software with screen captures and descriptions of key training moments using Qt
- Acted as interlocutor for an interdisciplinary team with the UF Veterinary School

Conferences & Papers

Scan2Twin: Virtual Reality for Enhanced Anatomical Investigation
IEEE Conference on Virtual Reality and 3D User Interfaces (IEEEVR 2024) (Doctoral Consortium)
Jennifer C. Cremer

Immersive VR 3D Model for Rectal Cancer Robotic Surgery
American Society of Colon and Rectal Surgeons via Intuitive Research - 2023 - Video Abstract
P. Mazirka, J. Cremer, J. Balch, A. Rashid, K. Ehresmann, L. Goldstein, J. Nordenstam, T.E. Read, J. Grajo, J. Peters, K. Terracina

Patient-Specific MRI VR Model Construction and Simulation
Women in Scientific Computing on Complex Physical and Biological Systems (Poster) - 2022 - Gainesville, FL
Jennifer C. Cremer, Jörg Peters

From Scans & Model Collections to Interactive Surgical Simulation
ACS Surgeons and Engineers 2021- Poster
Jennifer Cremer, Ruiliang Gao, Krista Terracina MD, Jörg Peters

VascularVR (Research Exhibitor)
Academic Surgical Congress 2020 - Orlando, FL

Grants & Awards

Research in Robotic Technology Grant - Research Foundation of the ASCRS 2021-2023
CISE Department Nominee, Outstanding Graduate Teaching Assistant Award, UF 2020
NSF GRFP Honorable Mention, Computer Graphics and Visualization 2020

Teaching

Dept. of Computer & Information Science & Engineering, Univ. of Fl

Teaching Assistant 2017 - Present

- Assisted the professor with course management and individual student affairs
- Mentored students through office hours and one-on-one communication
- Developed project specifications, lab assignments, and grading protocols
- Taught lab sections covering review and supplemental materials

Courses:

COP3530 – Data Structures and Algorithms	2025
COP3503 – Programming Fundamentals 2 in C++	2019, 2020, 2024, 2025
CAP3027 – Introduction to Computational Media	2024
CAP4053 – Artificial Intelligence for Computer Games**	2019, 2024
CAP5705 – Computer Graphics**	2022
CIS6930 – Information Visualization	2022
COP3504C – Adv. Programming Fundamentals**	2021
CIS4930 – Special Topics: Performant Programming in Python**	2020, 2022
COP4600 – Operating Systems**	2017–2020

***Developed original assignment specifications and materials*

UF at Kyoto University Summer Abroad Program 2022
CIS4930 – Performant Programming in Python | CIS4930 – Cross-Cultural Engineering

- Assisted the professor in course organization and student affairs
- Helped organize and execute excursion trips as examples of sensitive engineering in life
- Mentored students through office hours and one-on-one communication.
- Developed original assignment specifications and materials

Instructor on record 2020 - 2021
CIS4930 – Performant Programming in Python 2021

- Instructed students on industry soft-skills including team dynamics and communication of ideas
- Saw to the needs of both traditional student and online student sections
- Coached course assistants in observing students for troubling behavior and mediation technique

CIS4930: Special Topics in CISE - Design Patterns in OOP 2020, 2021

- Original development of course content and material on key paradigms in programming and efficient design choices
- Instructed students on industry soft-skills including team dynamics and communication of ideas to an interdisciplinary audience
- Executed a smooth transition to online platform at the start of the covid-19 pandemic

Mentoring

SURFLab Undergraduate Student Research Coordinator 2018 - Present

Dept. of Computer & Information Science & Engineering, Univ. of Fl

Project manager to multiple mixed groups of students working on both independent projects and dissertation subprojects.

Provided guidance and oversight on reading research papers, project organization, presenting research ideas to the group, and developing mature scientific practices.

Team Lead, Academy Software Foundation Summer Learning Program 2021, 2022

Worked with a small group of learners over the course of the program to stay on track, grow as a cohort, and optimize their meetings with their industry mentors.

2021: Ximena Jaramillo, JaNiece Campbell, Jessica Zhou, Linda Lam

2022: Parag Gupta, Stephanie Lim

Operating Systems Team Lead 2018 - 2020

Dept. of Computer & Information Science & Engineering, Univ. of Fl

- Trained the staff on the responsibilities and general approach to being both a TA and mentor
- Provided detailed instruction on how to conduct discussion sections
- Led team of peer mentors and teaching assistants in organization of discussion content
- Taught the staff innovative strategies to better educate others, including utilizing the Socratic Method in Office Hours
- Coached graduate students to serve as mentors to the students under their care from a holistic standpoint in terms of both student major as well as each student's unique perspective

Summer Science Training Program Mentor, UF 2017, 2019

- Introduced high school students to the environment and experi-ence of working in a university research lab.
- Outlined project milestones and developed a comprehensive timeline for tasks.
- Provided guidance in conducting background research and how to frame accomplishments into an organized presentation.

Volunteering & Professional Service

Academy Software Foundation: Diversity & Inclusion Working Group 2020 - Present

SIGGRAPH Birds of a Feather 2025

SIGGRAPH Student Volunteer Info Session 2024, 2025

Summer Learning Program Organization Team 2023, 2024, 2025

DevDays Volunteer 2023

Student Volunteer for ACM SIGGRAPH 2023, 2024

VFX Careers Webinar Series, Academy Software Foundation - Virtual 2021

University panelist for "VFX Careers: Technical Director"

Lead presenter for "University Content: Building from Source with Cmake"

Understudy to Japan Study Abroad Organization 2019 - 2022

Teaching Assistant consultant for CISE/Cross-Cultural Engineering Abroad Kyoto, Japan

Student Consultant to Digital Arts and Science Program 2018 - 2019

Organization and course direction suggestions to present DAS Director (Joshua Fox)

Technical Skills

Programming Languages:

C++, C#, Python, Java, OpenGL, WebGL, HLSL, Bash, JavaScript

Software Packages & Tools:

Unity 3D, OpenXR, Qt, PyTorch, Adobe CC Suite, Autodesk Maya, Blender

Extracurricular

WarHammer Miniature Painting	2023 – Present
Advanced Open-Water SCUBA Diving – PADI certification	2016 – Present
Amateur Wildlife Photography – birds in flight & macro bugs	2012 – Present