Jennifer C. Cremer

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Education

University of Florida, Herbert Wertheim College of Engineering

Ph.D, Computer Graphics & Visualization   Expected 2026

    Relevant Courses: Concurrent Programming, Comp. Graphics, Info. Visualization, Multimodal Data Mining

MSc, Computer Science   2018 – 2021

BS, Digital Arts & Science   2014 – 2018

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

Technical Skills

Programming Languages:
    C++, C#, Python, Java, OpenGL, WebGL, HLSL,

Software Packages & Tools:
    Unity 3D, OpenXR, Qt, PyTorch, Adobe CC Suite, Autodesk Maya, Blender

Research Experience

Jörg Peters - *SurfLab &* Eric Ragan - *INDIE Lab, Dept. of CISE, UF*

Graduate Student Researcher   *2018 – Present*

Scan2Twin

- 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

Assistant - *Redirected Walking Study*   2024

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

Undergraduate Researcher - *TIPS*   2017 - 2018

- 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, including screen captures and descriptions of key training moments using Qt
- Acted as interlocutor for an interdisciplinary team with the UF Veterinary School

Teaching Experience

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

Graduate Teaching Assistant	2018 - Present

Fundamentals of Computer Graphics, Information Visualization, Intro to Computational Media, AI for Computer Games, Operating Systems, Advanced Fundamentals

UF at Kyoto University Summer Abroad Program	2022
Instructor on record	2020 - 2021
Performant Programming in Python	2021
Design Patterns in Object-Oriented Programming	2020, 2021

Mentoring & Volunteering

Student Volunteer for ACM SIGGRAPH	2023, 2024
SURFLab Undergraduate Student Research Coordinator	2018 - Present

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

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

Academy Software Foundation: Diversity & Inclusion Working Group	2020 - Present
Member, University Liaison, University of Florida	
SIGGRAPH Student Volunteer Info Session	2024
Summer Learning Program Organization Team	2023, 2024
DevDays Volunteer	2023

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

Extracurricular

WarHammer Miniature Painting	2023 – Present
Advanced Open-Water SCUBA Diving – PADI certification	2016 – Present
Amateur Wildlife Photography – Nikon D7000 w/ 18mm-200mm	2012 – Present