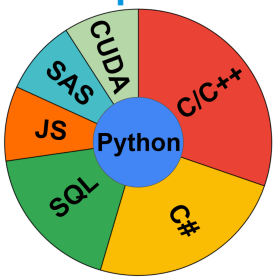
Address
923 E Westland Ave
Nashville, TN, 37206

Telephone
1(502)439-8818

Mail
parisra.vandy@
gmail.com

Research Interests
HCI
VR/AR/MR
Computer Vision
Computer Geometry

Programming Experience



Python 13 years
C/C++ 10 years
C# 8 years
SQL 6 years
JavaScript 3 years
R/SPSS/VBA 3 years

Skills & Expertise
Research
Data Science
Deep Learning
Physco-physics
Mobile Development
Experimental Design

Frameworks
Tensorflow/Keras
Pytorch
Detectron2
SFM/Colmap
Numpy/Pandas/SciKit
OpenCV/Eigen
THREE.JS/WebGL
Git/DVC/Docker
AWS/GCP/Azure

RichardParis
Ph.D. Computer Science and Engineering

Major Projects

Deep Mesh and Texture Extraction *Created machine learning and computer vision models to extract shape and texture information from video. Used temporal based computer vision to maintain consistency and extraction information from time domain. Used structure from motion to calibrate cameras to extend this work multi-camera.*

Camera Calibration
Built computer vision model to determine extrinsic and intrinsic camera calibration from video feed. Used ballpark **LiDAR** *data to extend dataset by merging 3D ballpark models with 2D video data. Built WebGL renderer to overlay 3D graphics (e.g., advertisements, trails, and effects) onto the 2D video.*

Pandemic
Pandemic is a tower defense game that acts as a conduit in the education and prevention of HIV/AIDS. Players of Pandemic are submersed into the human body where they assume the role of the immune system in a battle against HIV/AIDS.

Evaluation of Locomotion Techniques in Room and Standing Scale Tracked Spaces
This dissertation explored different virtual reality locomotion techniques to understand the cognitive effect each had on navigation. Walking techniques were implemented in various room sizes to further study the effects.

Experience

11/20 - Now **Computer Vision Engineer** — Verizon
- Improved upon human based segmentation techniques
- Integrated SMPL and SMPLX body models for avatar creation
- Managed and integrated many COTS machine learning models
- Feature based camera calibration and synthesis from uncalibrated cameras
- Created and maintained backend server for inference human model creation
- Created CI/CD workflows using Luigi, Jenkins, and Docker

11/19 - 11/20 **Machine Learning Engineer** — Major League Baseball
- Created advanced machine learning models to assist in computer vision
- Developed python APIs for integrating data from various relational databases, inter- and intra-net endpoints, and cloud storage solutions
- Developed advanced data visualizations to explore the accuracy and stability of computer vision models for segmentation and registration
- Developed API for quickly building deep learning models within our database and storage frameworks

10/17 - 10/19 **Computer Vision Engineer** — Vanderbilt University Medical Center
- Integrated computer vision and machine learning to understand pose estimation and human activity recognition and classification
- Implemented sensor fusion of biometric and visual data using recurrence and temporal fusion

05/15 - 10/17 **Graduate Research Engineer** — Vanderbilt University
- Designed and conducted user studies as part of an effort to understand perception action capabilities and spatial cognition in VR and AR
- Used statistical testing and data analysis techniques for hypothesis testing
- Worked with 3D avatar creation and mixed reality integration

Education

2013 - 2019 **Ph.D in Computer Science (GPA 3.9)** Vanderbilt University
Dissertation Title: Selecting an Appropriate Locomotion Modality using Room Size and Individual Differences in Navigation Ability

2012 - 2013 **Master's Degree in Computer Engineering (GPA 3.95)** University of Louisville
Main Focus: Computer Graphics Architecture
Thesis Title: Modified half-edge data structure and its applications to 3D mesh generation for complex tube networks

2008 - 2013 **Bachelor's of Electrical Engineering (GPA 3.90)** University of Louisville
Main focus: Robotic Design, Microcomputer Design, Control Systems
Senior Project 1: Prius Battery Management System
Senior Project 2: Hot plate temperature control system

2008 - 2012 **Bachelor's of Computer Engineering (GPA 3.88)** University of Louisville
Main focus: Computer Graphics, Computer Architecture, Game Design
Senior Project: *Pandemic* an educational tower defense game

Selected Publications

R Paris, B Bodenheimer, R Blake
Does direction of walking impact binocular rivalry between competing patterns of optic flow?
Attention, Perception, & Psychophysics 79 (4), 1182-1194

J Heard, **R Paris**, et al.
Automatic Clinical Procedure Detection for Emergency Services
2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
S Hanson, **R Paris**, H Adams, B Bodenheimer
Improving Walking in Place Methods with Individualization and Deep Networks
In Proceedings of IEEE VR 2019

R Paris, M Joshi, Q He, G Narasimham, TP McNamara, B Bodenheimer
Acquisition of survey knowledge using walking in place and resetting methods in immersive virtual environments
Proceedings of the ACM Symposium on Applied Perception, 7

G Pointon, C Thompson, SH Creem-Regehr, J Stefanucci, M Joshi, **R Paris**, B Bodenheimer
Judging action capabilities in augmented reality
Proceedings of the ACM Symposium on Applied Perception, 8

R Paris, P Sullivan, J Heard, D Scully, et al.
Heatmap Generation for Emergency Medical Procedure Identification
SPIE Proceedings: Image-Guided Procedures, Robotic Interventions, and Modeling, 2019

R Paris, J Klag, P Rajan, L Buck, TP McNamara, B Bodenhiemer
How video game locomotion methods affect navigation in virtual environments
ACM Symposium on Applied Perception 2019, 1-7

Patents Pending

R Paris, Solmaz Hajmohammadi
Methods and systems for deforming a 3d body model based on 2d image of an adorned subject (1782411)

R Paris, Solmaz Hajmohammadi, Daniel Michler, Jie Yu
Mesh Correction from Calibration to Mesh Refinement (xxxxxx)

R Paris, Solmaz Hajmohammadi, Daniel Michler, Jie Yu
Mesh Refinement (xxxxxx)