Cody Reading

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Experience

Computer Vision Researcher - 3D Generation

Simon Fraser University | Python, PyTorch

- Developing a 3D generative method that optimizes 3D Gaussians following sketch and text descriptions for high-quality geometric and apperance control
- Created a depth extraction method from Stable Diffusion by learning latent space update directions
- Built an image composition method guided by Stable Diffusion to correct foreground/background inconsistencies

Sept. 2023 – Present

Jan. 2022 – Aug. 2023

Sept. 2019 – Dec. 2021

Jan. 2018 - Aug. 2018

Burnaby, BC

Toronto, ON

Toronto, ON

Holmdel, NJ

Machine Learning Research Associate

Monsters Aliens Robots Zombies | Python, PyTorch

- Developed a facial de-aging tool Vanity AI designed for VFX applications, reducing manual artist time by 80%
- Built an image editing application with Streamlit involving both StyleGAN and traditional operations
- Implemented mask tracking for facial regions using a combination of StyleGAN and mesh-based visual alignment

Computer Vision Researcher - 3D Perception

University of Toronto | Python, PyTorch

- Developed a monocular 3D object detection method achieving 1st place on the KITTI and Waymo benchmarks
- Developed a 3D multi-object tracking method achieving 2nd place on the nuScenes 3D MOT benchmark
- Engineered infrastructure using SLURM, Bash, Python, and W&B to support large-scale experimentation

Software Engineer - Autonomous Driving

NVIDIA Corporation | C++

- Developed a vehicle trajectory generation library within the NVIDIA DriveWorks SDK from multi-sensor data
- Implemented configurable trajectory sampling and continuous pose estimation using interpolation
- Added 3D pose and coordinate transformation functionality using the Eigen C++ library

PUBLICATIONS

Bayes' Rays: Uncertainty Quantification for Neural Radiance Fields L. Goli, C. Reading, S. Sellán, A. Jacobson, A. Tagliasacchi	CVPR 2024 Highlight
BANF: Band-limited Neural Fields for Levels of Detail Reconstruction	CVPR 2024
InterTrack: Interaction Transformer for 3D Multi-Object Tracking	CRV 2023 Oral Presentation
Categorical Depth Distribution Network for Monocular 3D Object Detection C. Reading. A. Harakeh, J. Chae, S. Waslander	CVPR 2021 Oral Presentation
Unlimited Road-scene Synthetic Annotation (URSA) Dataset	ITSC 2018

M. Angus, M. ElBalkini, S. Khan, A. Harakeh, O. Andrienko, C. Reading, S. Waslander, K. Czarnecki

Education

Simon Fraser University	Burnaby, BC
PhD Candidate, Computing Science	Sept. 2023 – Present
University of Toronto	Toronto, ON
Master's of Applied Science, Aerospace Engineering	Sept. 2019 - Dec. 2021
University of Waterloo	Waterloo, ON
Bachelor of Applied Science, Honours Mechatronics Engineering	$Sept. \ 2013 - April \ 2019$

TECHNICAL SKILLS

Languages: Python, Bash, C/C++, MATLAB Developer Tools: Git, VS Code, Docker, Apptainer Libraries: PyTorch, NumPy, Kornia, Diffusers, Sckit-Learn, OpenCV, Weights & Biases, Streamlit, Matplotlib, Unittest