AARON WALSMAN

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Google Scholar

EDUCATION

University of Washington, Computer Science and Engineering (Seattle 2015-2023)
PhD on Interactive Learning, Robotics, Computer Vision, advised by Dieter Fox and Ali Farhadi

Carnegie Mellon University, Robotics Institute (Pittsburgh 2013-2015)
Masters of Science in Robotics, advised by Siddhartha Srinivasa at the Personal Robotics Lab

Rochester Institute of Technology, School of Film and Animation (Rochester 2001-2004)
Bachelor of Fine Arts in Film and Animation

PROFESSIONAL EXPERIENCE

Nvidia Robotics (Seattle 2018)
Research Internship in few shot visual object detection with Yu Xiang

Illumination Animation Studios (Paris 2013)
Consulting position on Bird Rigging

Blue Sky Animation Studios (New York and Connecticut 2006-2013)
Senior Character Technical Director. See Film Credits [A,B,C,D,E,F] below for details.

Omation Studios (California 2004-2006)
Character Technical Director and Generalist. See Film Credit [G] below for details.

TEACHING

University of Washington (Seattle - 2015-2023)
Multiple guest lectures for Deep Learning Courses taught by Joe Redmon and Ali Farhadi
Three lectures on Imitation and Reinforcement Learning for a Robotics course taught by Dieter Fox

Anomalia School (Litomysl - 2010)
Taught a two week seminar on programming for computer animation.

MENTORSHIP

While at the University of Washington, I have had the privilege of mentoring Weilin Wan[6,7], now pursuing a PhD at Hong Kong University, Klemen Kotar [1,3], now pursuing a PhD at Stanford University and Muru Zhang[2,3] who is applying for PhD programs this year.

SKILLS

Research Experience in Imitation and Reinforcement Learning, Robotics and Computer Vision
Software Development using Pytorch, Cuda, C++ and Python
Professional Experience in 3D Modeling, Character Setup and Computer Graphics

SELECTED PUBLICATIONS AND TALKS

[1] Kotar, Klemen, **Aaron Walsman**, Roozbeh Mottaghi. “ENTL: Embodied Navigation Trajectory Learner.” International Conference on Computer Vision, ICCV 2023.
https://arxiv.org/abs/2304.02639

[2] **Walsman, Aaron**, Muru Zhang, Sanjiban Choudhury, Ali Farhadi, Dieter Fox. “Impossibly Good Experts and How to Follow Them.” International Conference on Learning Representations, ICLR 2023.
https://openreview.net/forum?id=sciA_xgYofB

[3] **Walsman, Aaron**, Muru Zhang, Klemen Kotar, Karthik Desingh, Ali Farhadi, and Dieter Fox. "Break and make: Interactive structural understanding using lego bricks." European Conference on Computer Vision, ECCV 2022.
https://arxiv.org/abs/2207.13738

[4] Agnew, William, Christopher Xie, **Aaron Walsman**, Octavian Murad, Yubo Wang, Pedro Domingos, and Siddhartha Srinivasa. "Amodal 3d reconstruction for robotic manipulation via stability and connectivity." Conference on Robot Learning, CoRL 2021.
https://arxiv.org/abs/2009.13146

[5] **Walsman, Aaron**, Yonatan Bisk, Saadia Gabriel, Dipendra Misra, Yoav Artzi, Yejin Choi, and Dieter Fox. "Early fusion for goal directed robotic vision." International Conference on Intelligent Robots and Systems, IROS 2019.
Nominated for IROS RoboCup Best Paper Award
https://arxiv.org/abs/1811.08824

[6] Wan, Weilin, **Aaron Walsman**, and Dieter Fox. "Part segmentation for highly accurate deformable tracking in occlusions via fully convolutional neural networks." International Conference on Robotics and Automation, ICRA 2019.
https://arxiv.org/abs/1908.01504

[7] **Walsman, Aaron**, Weilin Wan, Tanner Schmidt, and Dieter Fox. "Dynamic high resolution deformable articulated tracking." International Conference on 3D Vision, 3DV 2017.
https://arxiv.org/abs/1711.07999

[8] Calli, Berk, **Aaron Walsman**, Arjun Singh, Siddhartha Srinivasa, Pieter Abbeel, Aaron M. Dollar. “Benchmarking in Manipulation Research: The YCB Object and Model Set and Benchmarking Protocols.” IEEE Robotics & Automation Magazine Special Issue on Replicable and Measurable Robotics Research 2015.
https://arxiv.org/abs/1502.03143

[9] Zeglin, Garth, **Aaron Walsman**, Laura Herlant, Zhaodong Zheng, Yuyang Guo, Michael C. Koval, Kevin Lenzo, Hui Jun Tay, Prasanna Velagapudi, Katie Correll, Siddhartha S. Srinivasa. “HERB's Sure Thing: a rapid drama system for rehearsing and performing live robot theater.” Workshop on Advanced Robotics and its Social Impacts, ARSO 2014.
https://ri.cmu.edu/pub_files/2014/9/ARSO2014-Drama.pdf

[10] **Walsman, Aaron**, Todd Hill. “Building the Birds of Rio.” Special Interest Group on Computer Graphics and Interactive Techniques, SIGGRAPH 2011.

FILM CREDITS AND ROLES:

[A] Rio II for Fox Filmed Entertainment at Blue Sky Studios: Bird Lead for the Character Rigging Department. Updated bird control systems to the character pipeline developed for Epic. Lead the development of all bird control rigs on Rio II. Rebuilt the animation control rig for Nigel the Cockatoo.

[B] Epic for Fox Filmed Entertainment at Blue Sky Studios: Creature Lead for the Character Rigging Department. Developed new character pipeline tools to simplify and upgrade the character rigging process at Blue Sky. Lead the development of all creature control rigs in Epic. Developed several new animation control systems for snails including articulated eye stalks, realtime soft contact deformation and prehensile fins. Built the control rig for Grub the Snail.

[C] Ice Age IV: Continental Drift for Fox Filmed Entertainment at Blue Sky Studios: Senior Character Technical Director. Provided rigging tools and support while developing new character pipeline tools for Epic.

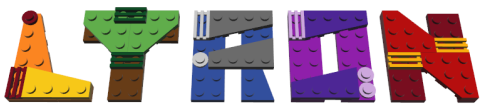
[D] Rio for Fox Filmed Entertainment at Blue Sky Studios: Bird Lead for the Character Rigging Department. Developed new animation control systems for bird wings, feathers, necks and spines. Lead the development of all bird control rigs in Rio. Built the control rig for Nigel the Cockatoo.

[E] Ice Age III: Dawn of the Dinosaurs for Fox Filmed Entertainment at Blue Sky Studios: Character Technical Director. Developed new animation control systems for pterodactyl wings and built the pterodactyl control rigs.

[F] Dr. Seuss' Horton Hears a Who for Fox Filmed Entertainment at Blue Sky Studios: Character Technical Director. Developed animation control systems for Horton the Elephant's ears and trunk. Built the control rig for Dr. Larue.

[G] The Barnyard for Nickelodeon/Paramount at Omation Studios: Character Technical Director and Generalist. Built a character pipeline that supported the development of over 100 character control rigs. Built the control rigs for several main characters.

SOFTWARE:



LTRON is an interactive gym environment for training AI agents to manipulate LEGO bricks. It supports large scenes and thousands of individual brick shapes. For more information see: github.com/aaronwalsman/ltron.

Splendor-Render is a lightweight 3D renderer written in Python using PyOpenGL. It supports fast high quality image-based lighting using physically-based rendering techniques and is designed for online data generation. For more information see: github.com/aaronwalsman/splendor-render.