Connor R. Schenck

Resume

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WORK EXPERIENCE

Thirdwave Automation
Union City, CA

Engineering Manager/Director — *January 2022 - current*
- Managed a team of 4 focused on developing algorithms to allow the forklift to manipulate pallets.
- Coordinated the larger team of 7 with other directors to produce a product for a commercial pilot.

Applied Research Scientist — *April 2021 - December 2021*
- Researched novel ways to apply learning from demonstration to forklift automation.
- Conducted data-driven experiments to investigate viability of various approaches to incorporating demonstrations.

Tech Lead/Senior Software Engineer — *October 2018 - March 2021*
- Developed the planning and control stack for the autonomous forklifts from the ground up.
- Applied modern robotics algorithms to solve challenging tasks in the forklift domain.

Nvidia Corporation
Seattle, WA

Research Intern — *Winter 2018*
Robotics Research Lab
- Conducted research in robotics on combining deep learning with fluid simulation.
- Developed new particle convolution layer for performing convolutions on unordered particle sets.
- Constructed a fluid simulator using only deep neural networks.

Google, Inc.
Mountain View, CA

Software Engineering Intern — *Winter/Spring 2017*
Google Brain
- Conducted research in robotics focusing on applying deep learning to robotic tasks.
- Published the results of the research in a peer-reviewed academic conference.

Software Engineering Intern — *Summer 2015*
Google X
- Created a tool to help analyze the performance of various modules of the self-driving car's codebase.
- Applied machine learning to detect yielding of other cars to the self-driving car.

EDUCATION

University of Washington
Seattle, WA

Doctor of Philosophy — *Summer 2018*
- Major: Computer Science & Engineering
- Thesis Field: Robotics
- Advisor: Dr. Dieter Fox

Iowa State University of Science and Technology
Ames, IA

Master of Science — *Summer 2013*
- Major: Computer Science
- Co-Major: Human-Computer Interaction
- Thesis Field: Developmental Robotics
- Advisor: Dr. Alexander Stoytchev

Bachelor of Science — *Fall 2011*
- Major: Computer Science
- Emphasis: Artificial Intelligence and Machine Learning
- GPA: 3.92/4.0 *Summa Cum Laude*

TECHNICAL SKILLS

Programming Languages, Libraries and Software Applications
- *Recent*: C++, Python, Cuda, Bazel, Git, Linux, OpenCV, PyTorch
- *Past*: C, Java, Matlab, Unix shell scripting, LaTeX, Windows, GNU make, Matlab Image Processing Toolkit, Java Swing, Microsoft Foundation Classes, Robot Operating System, Weka, Scikit-Learn, Caffe, Tensorflow

PhD Thesis

- **Schenck, C.**, "Liquids & Robots: An Investigation of Techniques for Robotic Interaction with Liquids," PhD Thesis, Paul G. Allen School of Computer Science & Engineering, University of Washington, Seattle, WA, August 2018.

Master's Thesis

- **Schenck, C.**, "Intelligence Tests for Robots: Solving Perceptual Reasoning Tasks with a Humanoid Robot," M.S. Thesis, Department of Computer Science & Human-Computer Interaction Program, Iowa State University, Ames, IA, July 2013.

Refereed Journal Articles

- **Schenck, C.**, and Fox, D, "Perceiving and Reasoning About Liquids Using Fully-Convolutional Networks," *International Journal of Robotics Research (IJRR)*, Vol. 37, No. 4–5, pp. 452–471, April, 2018.
- **Schenck, C.**, Sinapov, J., Johnston, J., and Stoytchev A., "Which Object Fits Best? Solving Matrix Completion Tasks with a Humanoid Robot," *IEEE Transactions on Autonomous Mental Development*, Vol. 6, No. 3, pp. 226–240, 2014.
- Sinapov, J., **Schenck, C.**, Staley, K., Sukhoy, V., and Stoytchev A., "Grounding Semantic Categories in Behavioral Interactions: Experiments with 100 Objects," *Journal of Robotics and Autonomous Systems*, Vol. 62, No. 5, pp. 632–645, 2014.
- **Schenck, C.**, Sinapov, J., and Stoytchev, A., "Which Object Comes Next? Grounded Order Completion by a Humanoid Robot," *Journal of Cybernetics and Information Technologies*, Vol. 12, No. 3, pp. 5–16, 2012.
- Sinapov, J., Bergquist, T., **Schenck, C.**, Ohiri, U., Griffith, S., and Stoytchev, A., "Interactive Object Recognition Using Proprioceptive and Auditory Feedback," *International Journal of Robotics Research*, Vol. 30, No. 10, pp. 1250–1262, 2011.

Conference Articles (peer reviewed)

- **Schenck, C.**, and Fox, D., "SPNets: Differentiable Fluid Dynamics for Deep Neural Networks," In *Proceedings of the Second Conference on Robot Learning (CoRL)*, Zurich, Switzerland, October 29–31, 2018.
- **Schenck, C.**, Tompson, J., Fox, D., and Levine, S., "Learning Robotic Manipulation of Granular Media," In *Proceedings of the First Conference on Robot Learning (CoRL)*, Mountain View, CA, USA, November 13–15, 2017.
- **Schenck, C.**, and Fox, D, "Reasoning About Liquids via Closed-Loop Simulation," In *Robotics: Science & Systems (RSS)*, Cambridge, MA, USA, July 12–16, 2017.
- **Schenck, C.**, and Fox, D, "Visual Closed-Loop Control for Pouring Liquids," In *Proceedings of the International Conference on Experimental Robotics (ICRA)*, Singapore, May 29 – June 3, 2017.
- **Schenck, C.**, and Fox, D, "Towards Learning to Perceive and Reason About Liquids," In *Proceedings of the International Symposium on Experimental Robotics (ISER)*, Tokyo, Japan, October 3–6, 2016.
- Sinapov, J., **Schenck, C.**, and Stoytchev, A, "Learning Relational Object Categories Using Behavioral Exploration and Multimodal Perception," In *Proceedings of the 2014 IEEE International Conference on Robotics and Automation (ICRA)*, Hong Kong, China, May 31 – June 7, 2014.

Workshop Articles (peer reviewed)

- **Schenck, C.**, and Fox, D., "SPNets: Modeling Position Based Fluids using Smooth Particle Networks," In *Proceedings of Robotics Science & Systems (RSS) 2018 Workshop Learning and Inference in Robotics: Integrating Structure, Priors and Models*, Pittsburgh, PA, USA, June 29, 2018.
- **Schenck, C.**, and Fox, D., "Detection and Tracking of Liquids with Fully Convolutional Networks," In *Proceedings of Robotics Science & Systems (RSS) 2016 Workshop Are the Skeptics Right? Limits and Potentials of Deep Learning in Robotics*, Ann Arbor, Michigan, USA, June 18, 2016.
- **Schenck, C.**, and Sinapov, A., "The Object Pairing and Matching Task: Toward Montessori Tests for Robots," In *Proceedings of the Humanoids 2012 Workshop on Developmental Robotics*, Okaka, Japan, November 29, 2012.
- **Schenck, C.**, Sinapov, J., and Stoytchev, A., "Which Object Comes Next? Grounded Order Completion by a Humanoid Robot," *AIMSA Workshop: Advances in Robot Learning and Human-Robot Interaction*, Varna, Bulgaria, September 12, 2012.