Adam Allevato

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Work and Research Experience

Diligent Robotics, Lead Robotics Software Engineer, Perception Team Lead July 2021 - Present

- Managing team of 3 to build deep transformer neural networks and 2D/3D perception algorithms, train networks using in-house data pipeline+SageMaker, and ship to NVIDIA Jetson edge devices on 100+ production robots
- Strategic planning, development, maintenance, and support of perception code, tools, and robot software platform

Pensa Systems, Robot Software Engineer Apr 2020 - June 2021

- Developed algorithms for drone task planning, vision-based localization, fiducial markers (C++, Python, ROS)

The University of Texas at Austin: Graduate Research Assistant

Socially Intelligent Machines (SIM) Lab 2017-2020

- Research combined simulation, deep learning, computer vision, human-robot interaction, and physical robots
- Developed new algorithms in Python and C++ for low-data machine learning from human input
- Published 6 peer-reviewed papers on using deep networks and simulation for sim-to-real robot learning (Scholar)

Nuclear and Applied Robotics Group (NRG) 2014-2017

- Led 4-student team and published 3 papers on computer vision for robot manipulators in radiation environments

Diligent Robotics: Engineering Intern Summer 2018

- Employee #7, created the first 100+ unit tests, built out first CI system solo, using C++, Python, ROS, Docker

Open Robotics (formerly OSRF): Software Engineering Intern Summer 2017

- Designed and developed the first-ever ROS2 pick-and-place demo, presented at ROSCon 2017

Amazon Picking Challenge 2015

- Wrote library to detect 15 object classes using 3D computer vision, machine learning, and synthetic training data

Los Alamos National Laboratory: Graduate Research Associate Summer 2015, Summer 2016

Rocky Mountain Student Media Corporation: Webmaster February 2011-May 2014

Education

The University of Texas at Austin, Austin, TX 2014-2020

PhD, Mechanical Engineering, Dissertation: Combining Simulated Predictions and Real-World Data for Efficient Robot Model Adaptation. *Advisors: Andrea Thomaz, Mitch Pryor*

Masters of Science, Mechanical Engineering, Thesis: An Object Recognition and Pose Estimation Library for Intelligent Industrial Automation. *Advisor: Mitch Pryor*

Colorado State University, Fort Collins, CO 2010-2014

Bachelor of Science, *summa cum laude*, Mechanical Engineering

Honors and Awards

Outstanding Reviewer Award, NeurIPS conference 2021

US DOE Nuclear Energy University Program (NEUP) Fellow 2015-2018

Tau Beta Pi Mechanical Engineering Honor Society 2013-2015

CSU College of Engineering Dean's List 2011-2014

Journal Publications

A. Allevato, E. S. Short, M. Pryor, A. Thomaz. "Multiparameter Real-World System Identification using Iterative Residual Tuning". *Journal of Mechanisms and Robotics*. 2021

A. Allevato, E. S. Short, M. Pryor, A. Thomaz. “Iterative Residual Tuning for System Identification and Sim-to-Real Robot Learning”. *Autonomous Robots*. 2020.

Conference Publications

A. Allevato, E. S. Short, M. Pryor, A. Thomaz. "Model and Controller Adaptation with Unknown Human Preferences". Submitted to *Robotics: Science and Systems (RSS)*. 2021.

A. Allevato, M. Pryor, A. Thomaz. "Multidimensional System Identification using Iterative Residual Tuning". *ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE)*. 2020.

A. Allevato, E. S. Short, M. Pryor, A. Thomaz. “Learning Labeled Robot Affordance Models by using Simulations and Crowdsourcing”. *Robotics: Science and Systems (RSS)*. 2020.

A. Allevato, E. S. Short, M. Pryor, A. Thomaz. "TuneNet: One-Shot Simulation Tuning for Physics Prediction and Robot Task Planning". *Conference on Robot Learning (CoRL)*. 2019. GitHub, Video, ImportAI

E. S. Short, **A. Allevato,** M. Pryor, A. Thomaz. "SAIL: Simulation-Informed Active In-the-Wild Learning". *International Conference on Human-Robot Interaction (HRI)*. 2019.

A. Allevato, A. Thomaz, M. Pryor. "Affordance Discovery using Simulated Exploration". *International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*. 2018.

E. Paredes, C. Petlowany, M. Horn, **A. Allevato**, M. Pryor. "Automated glovebox workcell design". *Waste Management Symposium*. 2018.

A. Allevato, M. Horn, M. Pryor. "Demonstrating Autonomous and Robust Sorting in a Glovebox Environment". *American Nuclear Society Decommissioning and Remote Systems*. 2016.

A. Allevato, M. Pryor. "Characterizing Glovebox Automation Tasks using Partially Observable Markov Decision Processes". *American Nuclear Society Decommissioning and Remote Systems*. 2016.

Invited Talks

"Frontiers in Machine Learning for Robotics," guest lecture, *UT Austin Future of Humanity Class*. March 2018.
"Using Simulations to Assist Human-Robot Interaction," guest lecture, *UT Austin Robotics and Automation Society*. February 2019.