Kyle Vedder

http://vedder.io

Education

- PhD in Computer Science, University of Pennsylvania (2019 – 2025)
- BS in Computer Science, University of Massachusetts (2015 – 2019)

Technical Skills

- Proficient with C++1X, Python 3, PyTorch, ROS 1, git, Debian Linux, LaTeX
- Knowledgeable in 3D Object Detection ([1] [2]), Classical Planning ([1] [2]), Motion Planning ([1] [2]), Monte Carlo Localization & Obstacle Avoidance ([1]), Shapley Values for Explainable AI ([1] [2])

Publications

Conferences/Journals

- *X*: Anytime Multi-Agent Path Finding For Sparse Domains Using Window-Based Iterative Repairs.* Kyle Vedder and Joydeep Biswas. In Artificial Intelligence, Volume 291, 2021. [pdf] [website]

- *X*: Anytime Multiagent Path Planning With Bounded Search.* Kyle Vedder and Joydeep Biswas. In Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems, Montreal, Quebec, CA. July 2019. [pdf]

Workshops

- *Sparse PointPillars: Exploiting Sparsity on Birds-Eye-View Object Detection.* Kyle Vedder, Eric Eaton. Sparsity in Neural Networks Workshop. 2021. [pdf] [arxiv]

- *Augmenting Planning Graphs in 2-Dimensional Dynamic Environments With Obstacle Scaffolds.* Spencer Lane, Kyle Vedder, and Joydeep Biswas. In Proceedings of the 5th Workshop on Planning and Robotics (PlanRob), Pittsburgh, PA, USA. June 2017. [pdf]

Honors and Awards

- *Goldwater Scholarship Honorable Mention* (2018)
  - One of 281 Honorable Mentions selected from a pool of 1280 national nominees
- *Outstanding Undergraduate Course Assistant (CS220 Programming Methodologies)* (2017)
  - Received award for contributions to course development

Academic Experience

- Research Assistant – Lifelong Machine Learning group (LML) (2019 – Present)
  - Research in continual learning, vision, and robotics
  - Coordinated subcontractors for DARPA Lifelong Learning Machines grant project
- Research Assistant – Autonomous Mobile Robotics Lab (AMRL) (2016 – 2019)
  - Research in anytime single-agent and multi-agent path finding
  - Developed core software systems for RoboCup Small Size League team, UMass Minutebots
- Academic Reviewer (2019 – Present)
  - AAAI 2020 – 2021, AAMAS 2021, JMLR (Secondary) 2021
  - Reviewed articles on topics across robotics, vision, machine learning, and AI
- Teaching Assistant – *CIS 519 Applied Machine Learning* (2021)
  - Head TA managing 14 TAs doing homework assignment creation, running office hours, and performing small group cohort sessions
- Teaching Assistant – *CIS 700 Integrated Intelligence* (2020)
  - Developed assignments, led paper discussions, led technical lessons on ROS and C++, and helped students with ideation and execution of final project
- Undergraduate Course Assistant – *CIS 220 Programming Methodologies* (2016 – 2017)
  - Led discussion sections, held office hours, answered Q&A forum questions, overhauled course material, and restructured discussion sections to better suit student needs

Industry Experience

- Amazon Lab126 – Software Development Intern   (Summer 2019)
  - Worked on non-public project doing novel classical multi-modal vision-based sensor fusion
- Google – Software Engineering Intern   (Summer 2017)
  - Worked on Ads Quality Metrics team to deliver statistics about bad ads. Developed information theoretic optimization approach to aquire maximally diverse training data
- Google – Software Engineering Intern   (Summer 2016)
  - Worked on AdWords Next Overview, the homepage of redesigned AdWords. Developed offline pipelines to do statistical analysis over entire customer dataset to provide automated insights
- Unidesk Corporation – C++ Developer   (Summer 2015)
  - Designed and implemented testing framework for proprietary Windows registry manipulation APIs, ensuring bug-for-bug compatability with Windows' implementation of fixed width UTF-16
- Unidesk Corporation – Robotics Intern   (Summer 2014)
  - Worked with CTO and CMO to implement a trade show display using a 6DOF robot arm controlled via high level pick-and-place commands. Wrote Java backend to maintain world state and dynamically generate FORTH written over a serial bus to execute robot trajectories requested from high level RESTful API