Kyle Vedder

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Education

University of Massachusetts Amherst

B.S. in Computer Science *2015 - 2018*

- GPA: *3.877*
- Relevant Coursework: *CS 683 (Graduate) Artificial Intelligence, CS 603 (Graduate) Robotics, CS 589 (Graduate) Machine Learning, MATH 545 Applied Linear Algebra, CS 575 Combinatorics and Graph Theory, CS 497P Programming Languages*

Publications

X*: Anytime Multiagent Planning With Bounded Search

Kyle Vedder and Joydeep Biswas *In Submission*

Pre-published in arXiv:1811.12598v1

Augmenting Planning Graphs in 2-Dimensional Dynamic Environments With Obstacle Scaffolds

Spencer Lane, Kyle Vedder, and Joydeep Biswas *ICAPS PlanRob 2017*

In *Proceedings of the 5th Workshop on Planning and Robotics (PlanRob)*, Pittsburgh, PA, USA June 2017.

Honors & Awards

Goldwater Scholarship Honorable Mention

The Barry Goldwater Scholarship Foundation *2018*

- One of 281 Honorable Mentions selected from a pool of 1280 national nominees.

Course Citation

CS 683 Artificial Intelligence *2018*

- Received course citation for outstanding overall performance in a core graduate class, getting the best score in the final exam, the highest score on quizzes, excellent contributions to class discussions, and completing a substantial amount of optional homework.

Course Citation

CS 240 Reasoning Under Uncertainty *2017*

- Received course citation for outstanding performance and promoting an environment conducive to learning.

Course Citation

CS 187 Data Structures and Algorithms *2016*

- Received course citation for outstanding performance and ranking in the top three students.

Outstanding Undergraduate Course Assistant

CS 220 Programming Methodologies *2017*

- Received award for contributions to course development.

Dean's List

Registrar's Office *2015 – 2018*

- Attained Dean's List every semester for achieving above a 3.50 semester GPA.

Academic Experience

AMRL Robotics Lab

Research Assistant *2016 - Present*

- Developed X*, an anytime multiagent planner for realtime systems.
  - Designed, proved correct, implemented, and evaluated all algorithms.
  - Performed literature review and wrote paper with high level editing input from adviser.
- Developed Obstacle Scaffolds, an extension to roadmap based planners that allow for finer path generation near dynamic obstacles.
  - Implemented both baseline and experimental planners.
  - Evaluated the planner in multiple scenarios.
- Founding member of the UMass Minutebots, the RoboCup Small Size League team that serves as a research platform for the development of autonomous realtime systems.
  - Architected and implemented majority of the core software infrastructure for the control stack.
  - Implemented state-of-the-art realtime path planning, low level collision avoidance, and portions of the motion planning system.

CS 220 Programming Methodologies

Teaching Assistant *2016 - 2017*

- Worked for three semesters to lead discussion sections, hold office hours, and answer questions on Q&A forum.
- Worked with instructor to improve projects as well as design and enact structural changes to the discussion sections to better suit student needs.

Industry Experience

Google Inc

Software Engineering Intern *Summer 2017*

- Worked with Ads Quality Metrics team to deliver meaningful statistics about bad ads to inform both business and engineering decisions. Applied techniques from a wide range of areas of Computer Science, from information theory to optimization, to develop tractable solutions to problems involving immense amounts of data, using C++ for performant implementation.

Google Inc

Software Engineering Intern *Summer 2016*

- Worked with AdWords Next Overview team to deliver to users useful, statistics driven insights about their ad campaigns. Wrote FlumeJava data pipeline to do offline statistical analysis on massive customer datasets as well as developed UI components using Dart and AngularDart to display the data.

Unidesk Corporation

C++ Developer *Summer 2015*

- Worked with a team of engineers to successfully design and implement a framework to test proprietary offline Windows registry hive manipulation APIs. Wrote C++ framework to call Win32 APIs to provide setup and validation of registry hives manipulated by Unidesk's registry hive editor.

Unidesk Corporation

Robotics Intern *Summer 2014*

- Worked with the CTO and CMO to successfully implement an articulated robot arm for a trade show to be manipulated by attendees through an iPad. Wrote Java backend to implement a JSON based web service to accept highlevel user input, translating the commands into lowerlevel FORTH commands to choreograph robot movements while avoiding collisions.

Skills

- Proficient with: *C++11 (Google Style), Java*
- Experience with: *C, Python, OCaml, SQL, Octave, FORTH, LaTeX*
- Tools: *ROS, git, Make, CMake*