Kyle Vedder

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Education

University of Massachusetts Amherst

B.S. in Computer Science *2015 - 2019*

- GPA: *3.90*
- Relevant Coursework: *CS 603 (Graduate) Robotics, CS 403 Intro to Robotics, CS 250 Intro to Computation, CS 240 Reasoning Under Uncertainty*

Skills

- Proficient with: *C++ (Google Style), Java*
- Experience with: *C, Python, Scala, SQL, Bash, FORTH, LaTeX*
- Tools: *git, Mercurial, ROS, Make, CMake, FlumeJava*

Publications

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

Specer Lane, Kyle Vedder, and Joydeep Biswas *ICAPS 2017*

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

Industry Experience

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.

Academic Experience

AMRL Robotics Lab

Research Assistant *2016 - Present*

- Implemented Scaffolding PRM, a novel extension to sPRM, and benchmarked it in a variety of created test cases against previous implementation of PRM for use in our ICAPS 2017 PlanRob workshop paper.
- Implemented Dynamic Safety Search, a recursive algorithm to guarantee robot safety, for use in AMRL's RoboCup control stack.
- Implemented PRM, a motion planning algorithm, for use as a baseline for research comparison as well as use as AMRL's RoboCup SSL motion planner.
- Implemented a simulator of a virtual RoboCup SSL field for use as AMRL's RoboCup SSL simulator. Developed network communication, infrastructure, and physics for multi-robot collisions and ball interaction in a performant manner.

CS 220 Programming Methodologies

Teaching Assistant *2016 - Present*

- Working with six other TAs 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 sessions to better suit students needs.

Honors & Awards

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 ranked in the top three students.

Dean's List

Registrar's Office *2015 – Present*

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

1st Place AWS, 1st Place Documentation, Overall Finalist

HackUMass IV *2016*

- Developed a working application in thirty six hours that can generate poems from images using a combination of machine learning and genetic programming. Implemented picture classification API calls, classification tag synonym gathering, synonym inflecting, poem generation, poem scoring, and genetic programming system.

3rd Place Finalist

HackHolyoke 2016 Hackathon *2016*

- Developed a working application in twenty four hours that can generate a video of Obama saying a user-provided phrase. Implemented a custom MapReduce framework using only the Java standard library and a smart caching system for sliced videos.

1st Place AWS, 1st Place Groupon, 2nd Place Overall

HackHolyoke 2015 Hackathon *2015*

- Developed a working application in twenty four hours that can provide UMass and Holyoke students personalized daily email digests of allergysafe foods to eat at each campus dining hall. Implemented the RESTful API, Email Generation Logic, Database I/O, and Web Scrapers.

Most Technically Challenging Project Award

Blueprint HackMIT Hackathon *2014*

- Developed a working application in eight hours with a team of three other high school students that provides free internet access via SMS text messages. Implemented an HTTP service backend in Java.