

Encrypted text

2017 Kevin Peterson

Employee: Ammar Husain

Manager: Kevin Peterson

Date of Review: 12/20/2017

General Work Performance

Rating - 3.5 / 5

Reviewers said:

- I would really like to see Ammar's software get deployed. Lots of great ideas, but they get stuck by infrastructure issues or are not used (e.g., messaging). Need to take proactive steps to get things into use by the rest of the team.
- Ammar's knowledge about c++ has been helpful for the team. He has many good ideas about style and how to do things, but again needs to be proactive about convincing the team to use those ideas.
- Ammar's breadth of experience has shown itself in a lot of different areas including infrastructure, computer vision, machine learning, interviewing.
- He's been working on the hard problem of curb detection independently and has made some good progress
- Has the best understanding of advanced C++ out of anyone on the team.
- Has to get better at shipping code to run on the robot. The driveable area detector for example is not quite ready. See areas for improvement.

You said:

- Focus on building perception modules keeping in mind overall system architecture & sw pipeline.
- Developed first pass at a lidar based drivable area detector.
- Contributed to robot infrastructure & sw dev ops tasks (build scripts, beast/vault maintenance & upgrades)

Teamwork

Rating - 4 / 5

Reviewers said:

- Great at recruiting
- Built several pieces of infrastructure
- Good voice for software process and code review
- Ammar has been really helpful in interviewing
- He gives thoughtful advice when asked
- Out of everyone on the software team he's the least likely to jump in and help with random issues and tasks that arise and are shared responsibility. It feels like he's silo'ed off from the rest of the team a little bit.
- Has suggested a number of process improvements for how we merge, test, and review code.
- Spent a decent amount of time working on infrastructure scripts which helped everyone be more productive.
- Has helped transfer some good software engineering professionalism / practices from apple.

You said:

- Recruiting & interviewing. Setting up coding tests to give to candidates.
- Invested time in thorough code reviews to maintain good code quality & standards.
- Help other software members with questions related git, C++ & general code/API design.

Major Accomplishments

Reviewers said:

- Protobuf implementation
- First cut at curb classifier
- It looks like he's found a decent way to detect curbs from lidar data.
- Prototyped protocol buffer ros messaging backend.
- Built drivable area detector.
- Wrote a bunch of scripting improvements for deploying code to the robots.

You said:

- Built a ROS msg replacement mechanism using Protobufs that works seamlessly like msg files though provides msg versioning and better control of data layout.
- Developed the first pass of a Lidar based drivable region detector projected onto offline tiled maps.
- Developed & debugged tasks related to random robot infrastructure (data & code deployment scripts), git & general sw workflow.

Areas for Improvement

Reviewers said:

- Needs to figure out how to rapidly prototype - iterate really quickly on a focused task, then work to integrate into the larger infrastructure. Overall, I think Ammar's ideas are great, but he gets stuck on infrastructure issues, and needs to work on designing small experiments that rapidly prove concepts.
- He's been working on drivable area for quite some time and nothing is running in production yet. I know he's been blocked by the lack of infrastructure for running the slam process and I remember we hired him with the expectation of doing 50% infrastructure work. I think part of the culture of the team is taking on responsibility for building that infrastructure when we need it, not waiting for someone else to do it.
- I think it would help him and everyone else if he were more willing to jump in and help with other parts of the software stack.
- Pick things to work on which have more of an impact relative to time commitment. Pick more manageably sized projects which can be finished. Triage tasks by figuring out ahead of time when something is technically good, but just not worth it in terms of time commitment.
- Avoid scope creep and tangents when working towards a technical goal.
- More visibility! More of his work needs to get onto the robot. Work that doesn't get onto the robot needs to be displayed somehow (presentation to team, etc). People outside of the software team have no idea what you do.

You said:

- Plan projects in a way to release & deploy features faster.

- Periodically communicate ongoing and completed projects & roadmaps to folks within SW & Marble.
- Set expectations and scope out deliverables before embarking on both short and long term projects.

How well does this person embody Marble's values, as you see them?

Reviewers said:

- Committed and passionate, but could work on sharing opinions more broadly and helping out across the system. Very thoughtful about pure software tasks.
- Out of everyone on the software team he's the least likely to jump in and help with random issues and tasks that arise and are shared responsibility. It feels like he's silo'ed off from the rest of the team a little bit. Could work on supporting tasks outside of his core responsibility, and on adding his voice to the broader discussion about software and design.
- Ammar is kind and thoughtful.
- Ammar is pragmatic and was willing to opt out of crossfit when he was worried about his back - sometimes saying no to something you enjoy is quite hard. But he listened to reason and is better for it.

You said (did you mean to write this in third person?):

- Ammar is committed to building & architecting a high quality robotic software system. He is also passionate about shipping a product and building any pieces of the system along the way to meet that goal. He strives to work within and contribute in building a lean organization with minimal process overhead.

Summary

This review is a bit shorter than others, since Ammar has only been on the team for half a year.

The last six months have been all about Ammar getting his bearings in our software system. The next six months need to be about clear accomplishment in the form of deployed code on the robot. It would be good for Ammar to take a more active voice on the software team - advocating for infrastructure needs, or building infrastructure himself that supports his goals. Overall, he's a good cultural fit, but needs to work on integrating a bit more into the team. I believe this will come with deployment of his code onto the system.

I'd like to see Ammar take charge of a key aspect of the system, and drive it to completion by developing code that runs either in the mapping system or on the robot.

Action Plan / Goals For 2018

[Fill these out together]

Build out features and APIs for the team to use.

50/50 split between research questions around detection and systems engineering / design / architecture tasks

First work on a deliverable around drivable area, then take on other aspects of the system

Mapping infrastructure is long-lead and will take some time to design

Three major projects:

- Get small object detection working (first with current drivable area detector, then drive down errors)
- Build data ingestion pipeline
- Formulate use cases / requirements for mapping infrastructure with Michael

Employee Comment

[Fill these out together]

I'd like to shift more focus towards building out some of the core infrastructural bits of the robotics & autonomy backend. This would mean shifting away from purely researchy bits of the

perception system that are longer lead in terms of deployment and have multiple dependencies which are harder to resolve. The immediate goal would be to deploy the point labeling system and move on towards some system level tasks.

I should've pushed harder to integrate the v0 (even though it was prototypy and not perfect) of the online drivable detector that has already been merged into master. Waiting on a better v1 slows down deployment.

Manager Signature:

Date:

Employee Signature:

Date: