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(2009-07-29, ConnorSchenck)

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-- TaylorBergquist - 24 July 2009

July 24, 2009

Done

Thanks to a lot of last-minute help from our graduate student mentors, we managed to get some results in time for the poster to go to print. They aren't the final results, exactly - they're more of a simplest-possible baseline that we will compare our final results to - but they're good enough for the poster. We've started in on the paper now - we should have something decent by Friday, no problem. Connor and I are both staying on campus until school starts, so we will be fine-tuning the paper and the research itself to get it ready for submission to IROS and ICRA. It would be awesome if it got into one of those - especially ICRA, because I've never been to Alaska, and if it gets accepted, I might get to go.

I feel very relaxed now that our major deadline has been met. I don't anticipate any more late nights - or, if I can help it, any working after 5 at all - for the rest of the summer. That being said, all else being equal, I would prefer that the paper be in a more refined state by Friday, so I still plan to make good use of my time to that end.

I really enjoyed editing the poster and I think that I will also enjoy editing the paper. As long as I think of the editing process as an optimization problem, I will obsess over it until it is perfect.

EDIT: We just got some results back from the global alignment + kNN experiment, and they are much, much better than the results from the k-gram + Bayesian classifier. We're going to edit the poster with the new results, with which we can definitely declare the research a success.

Add comment

ConnorSchenck - 29 Jul 2009 - 13:28

haha, not working after 5 anymore. That's not gonna happen.

HamadiMcIntosh - 29 Jul 2009 - 13:02

Good luck with continuing your project in August.

BellaManoim - 28 Jul 2009 - 14:36

good luck with the submissions!

-- TaylorBergquist - 24 July 2009

July 24, 2009

Vote for Watchmen!

About a week ago, we finished collecting data and started cleaning and analyzing it. Every piece of data - every audio file and every log file for the proprioceptive data - was much longer than it needed to be. We started recording several seconds before the relevant sounds

were actually generated, and also for several seconds afterwards, and we needed to cut this irrelevant information out so that it didn't confuse the clustering algorithms and in order to save ourselves some computation. As there were identical delays across all objects and trials - within the same interaction - the logical thing to do, since we had only 10 parameters to set, was to manually place the start and end points. We set about doing so, and were making good progress.

Then Alex came. he told us that Jivko had done something very similar for one of his papers, and that many of the people who reviewed the paper pointed it out as a weakness in his methodology. He advised us to base our crops on the data in order to avoid having similar comments. We devised a way to crop out the relevant information by comparing each time slice to the corresponding time slice in the case where no object existed. I ran into some problems while coding it, and long story short, it took two or three days to get it working. Then, this morning, just after I finished it and as we were looking at the results, Alex showed up again. He looked at our results, decided they were too inconsistent, agreed with us that any cropping that was based on the data would inherently have the same problem, and told us to crop it manually, as the reviewers would probably tear us apart for having invented an algorithm such as this just to crop the data.

So, I commented out the last two days' worth of work, and am going to spend the rest of the day doing it the way we had originally planned to do it.

On a side note, if Watchmen wins the vote for the movie night tonight, that would be great.

Add comment

-- [TaylorBergquist](#) - 13 July 2009

July 13, 2009

BOOM! HEADSHOT!

I had a great weekend. Saturday morning was amazingly productive - I think that I got more done in those 3 hours than I did during most of the week before. The rest of Saturday was fun as well - Connor, Alyssa, and I went down to Ankeny to see the cardboard boat regatta, as several of my high school friends had a boat in the race. They won their heat handily, but did not get a good enough time to get 1st, 2nd, or 3rd. The only downside was that it was hot and humid. Later that day Alyssa and I went to Chili's with my parents, my sisters, my aunt, and my cousins, where we had surprisingly good food.

The next day was even better - paintballing was incredibly fun. I somehow didn't realize that my gun was plugged up for the first few rounds, so I didn't hit anybody that I shot at and was getting frustrated. I eventually noticed, and once I got a new gun, I did much better. Throughout all of the rounds, even though I was hit several times, most of them didn't break and I only had to go out once. Still, I should've been hit more - I wasn't as aggressive as I should've been.

I also watched two movies yesterday - Pitch Black and Being John Malkovich. Pitch Black was only okay - it had more action than story and it was too slow-paced to be a really good action film. Malkovich, on the other hand, was... surprising. I'm really not sure if I actually enjoyed it or not, but I do know that I was on the edge of my seat the whole time. I'm going to have to watch it again sometime.

Well, it's almost time for the meeting, so I suppose I should stop here.

[ ] Add comment

UgonnaOhiri - 21 Jul 2009 - 21:59

NO NO NO SIR...BLOG ALERT!

-- [TaylorBergquist](#) - 8 July 2009

July 8, 2009

Solid Progress

We finally started coding this week, and thanks to a fairly extensive catalog of finished code, we're making good progress. Both the networking code and the sound recording code are fairly far along. In order to speed up progress on my current task (getting a usable self-organizing map up and running), I need to talk to Jivko. Hopefully I'll be able to sit down with him this afternoon.

I watched The Royal Tenenbaums last night, and I have to say that it is one of the better movies out of those I've seen recently. The way in which the characters were believable even though they were exaggerated caricatures reminded me somewhat of Little Miss Sunshine. It had a good soundtrack, too.

The PWSE seminar today was enjoyable, even though I had heard most of it before... it made me want to do fun things with the stack market 🙂 Maybe I can use some of the $1900 I just got for that.

[ ] Add comment

HamadiMcIntosh - 13 Jul 2009 - 13:24

It's too bad you didn't get to play our games. Getting poked with the toothpicks is a lot of fun. Lol.

BellaManoim - 09 Jul 2009 - 15:26

please look at the email Pam sent and sign up for our study

MinaChoi - 08 Jul 2009 - 23:43

Royal Tenenbaums!!! GREAT MOVIE! Love Ben Stiller and Owen Wilson.

BellaManoim - 08 Jul 2009 - 16:46

thats great you finally started coding

-- [TaylorBergquist](#) - 7 July 2009

July 7, 2009

Seattle

It's been a really long time since I blogged - sorry about that. Going to Seattle disrupted my routine, but I'm getting back into the swing of things.

Seattle was great. The flights there and back were long, so I got to listen to a lot of music and even write for a while. A lot of things were more or less what I expected them to be - the workshops, the poster presentation, and the free food were all just what i had thought they would be. Everyone seemed to have the common goal of 'a robot in

every home' but there were different ideas on how this goal should be attained. They seemed, in general, to fall into two camps - one concerned with programming the robot to be useful in a home, and another concerned with programming a robot to be able to learn to be useful in a home. The majority was in the former category. One group, for example, programmed their robot to drive around, open doors and plug itself in. The problem with their approach was that it wasn't robust to changes in its environment. If the power outlet was rotated from the expected orientation, the robot would never be able to plug itself in and would eventually run out of juice and die. A learning robot could adapt and, by experimentation, learn how to plug itself into the rotated outlet.

Of course, the learning strategy isn't without its flaws. It is, at this point, much less capable than the preprogrammed strategy, as the field is newer and trying to solve a small number of difficult general problems rather than a large number of easier but more situation-specific problems. Also, with the preprogrammed strategy, the robot might be a little more predictable, and we wouldn't be very likely to encounter robopocalypse scenarios ;).

The conference was especially useful in that I now feel like I have a slightly better idea about what's going on now in the field. Of course, it wasn't a developmental robotics conference, so it was neither entirely relevant nor containing the complete set of all current relevant work. Even so, I'm glad we could go.

The flip side of that is that we now have one week less to finish our project. We are going to be reusing/adapting some of Jivko's code, which will help, but we're still going to have to work a lot over the next few weeks to get everything done in time.

It might be a little early for this, but I've got a few ideas for what I want to work on next. Maybe I'll talk about them next time.

Add comment

-- [TaylorBergquist](#) - 25 June 2009

June 25, 2009

BLEEAARGH!!!

Largely thanks to our being extremely busy last week, we're narrowing down our goals. Now, instead, of combining information from three modalities, we're focusing on only two - audition and proprioception. Fortunately, the scaling back isn't as dramatic as it was last semester, as we aren't dumbing down the fundamentals of the project, just reducing the volume of stuff that needs to be implemented. Next semester, if we so chose, Connor and I would only need to implement a suitable visual feature extraction algorithm and make trivial modifications to the rest of the code.

I really hope that these time constraints are loosened somewhat in the future, because there are some things I would like to do that can't be easily broken down into chunks that can be handled in this amount of time. Then again, it could be argued that anything that can't be done in this amount of time, given fairly thorough knowledge of the state of the art, would be too broad to get worthwhile conclusions out of.

But I'm being too serious. I'm not really a serious person. The conference will be great fun, I'm going to be able to listen to music for thirteen consecutive hours on the way back, and when I do get back, Alyssa will be back from Illinois!

That, and Connor managed to break his stress ball. Comic relief

FTW.

| Add comment |

HamadiMcIntosh - 06 Jul 2009 - 13:08

How's the project coming?

UgonnaOhiri - 03 Jul 2009 - 00:21

How was Seattle Taylor? we ALL want to know lol!!!

JoshuaSituka - 30 Jun 2009 - 19:06

breaking a stress ball. That sounds like the beginning to a Chuck Norris joke.

ConnorSchenck - 25 Jun 2009 - 16:51

haha, ha haha, haha...very funny.

-- TaylorBergquist - 24 June 2009

June 24, 2009

Resonance

As far as our research goes, we're refocusing and getting back on schedule. We've set some new goals: now, we're going to shoot for starting data collection at the very end of this week or the very start of next week. If we do this, then we can get all of our data and have the rest of the time to mess around with it, trying all sorts of different feature extraction methods. Once we've gathered and processed the data, we need to figure out some sort of demo.

I've spent two or so hours per day doing nothing but listening to music over the last few days. I haven't done that since high school - I have to say that that's been the highlight of the summer so far, aside from the very limited amount of time I've been able to spend with my fiancée. There isn't much that can beat listening to OK Computer straight through.

The way my desk resonates with specific frequencies can be very distracting sometimes, but it is at least better than it was last year. Now that I think of it, there might be some way to compensate for that in software - like auto-equalizing based on the input from a mic. Anyone know anything about that?

| Add comment |

TaylorBergquist - 25 Jun 2009 - 15:35

Thanks for pointing that out - someone could have been seriously injured otherwise 😊

BellaManoim - 24 Jun 2009 - 15:04

it says June 22 on your blog heading

-- TaylorBergquist - 22 June 2009

June 22, 2009

Behind Schedule

I had a great weekend - lazy and work-free - and am ready for the week to start. We have a LOT of work to do, as last week was entirely taken up with REU stuff and the Science Channel demo. The summer's halfway done and we haven't written a line of code yet, or even made all of the big decisions about how we are going to do this and what we are going to do about that.

I did, however, have a lot of fun today in the ethics course and Stephen's 'How to Give a Talk' ...um... talk. I think that these classes are an important part of the REU so, to be honest, although I think there were too many classes and activities this summer, I can't really recommend cutting them by more than a third.

The weekend really was exactly what I needed, though - I'm ready for whatever this week has to throw at me.

Add comment

BellaManoim - 24 Jun 2009 - 15:04

a lazy weekend is the best kind of weekend.

-- TaylorBergquist - 19 June 2009

June 19, 2009

Weekend!

This week was very long and stressful, but I can't really say that it was very productive in terms of researching. The Science Channel demos ended up being the focus of the week. Fortunately, the demos all went very well. I think that the week of preparation paid off. Unfortunately, they didn't end up using most of our attentional model - just its improved face-tracking abilities - so most of our work this week was for naught. Although I'd rather have spent those hours researching, we still did get some experience out of this project - and I am beginning to see the truth in some of those PHD comics.

Today was really fun, though, and made up for the stress of the previous week. I got to do hang out with all of the other students who work in the lab for most of the day - a much-needed reprieve - while we waited around on standby. The filming went very smoothly - even Alex's son cooperated - and I think that our segment of the show will be a success.

Donnie Darko was great, too, even though I missed the first part of it because we didn't finish filming until after 7:00.

Add comment

PamShill - 22 Jun 2009 - 08:10

If you hear when your video will air on the Science Channel, please let us know. I'm sure we all want to see your team in action!

-- TaylorBergquist - 18 June 2009

June 18, 2009

Crazy busy...

I don't know if I've mentioned this on the blog yet, but the Science Channel is filming the lab tomorrow. My REU group has been working

on a demo for that since Tuesday. We're replicating part of an MIT student's thesis to develop an attentional model for the robot. Once it's complete and tweaked, the robot will be interested in faces, bright colors, and motion. In addition, it will become bored after looking at one thing for too long, and will search for some other interesting thing. Since Alex asked us to do this on Tuesday, we've been working on that or doing REU stuff every waking moment - which is why I haven't been blogging this week.

I can't wait for the weekend.

Add comment

BellaManoim - 18 Jun 2009 - 14:24

the science channel? wow!

-- TaylorBergquist - 11 June 2009

June 11, 2009

Oops!l

I forgot to blog yesterday - we went straight into doing things after lunch - so I'm going to be talking about two days today.

Yesterday and today have thus far been about selecting a research topic. We had four choices, which fell into two general categories: those that focused on the implementation and testing of a learning algorithm that embodied a certain set of principles, and those that did not, and were instead outstanding problems that needed to be solved. In other words, in two of the projects, we would start with an algorithm and apply it to test its capabilities, whereas in the other two possibilities, we would start with a problem and search for a way to solve it. I was very much in favor of implementing and testing the algorithm, but in the end we decided that the task was beyond our capability to do in a summer.

Connor and I, however, intend to work on this algorithm over the summer in our (probably sparse) free time, so that we will be better able to do something with it next semester.

Today, we chose one of the two remaining ideas and have begun a focused lit review. One of our grad student mentors, Jivko Sinapov, did a recent project that was very closely related to what we are thinking of doing. Hopefully, with his expert advice and plenty of proactive work on our part, we can get a solid result without having to resort to marathon coding sessions.

Ha. Right.

🙂

Add comment

MichaelOren - 17 Jun 2009 - 18:22

It's been too long since you've blogged.

-- TaylorBergquist - 9 June 2009

June 9, 2009

Largely Uneventful

I overslept today - for some reason, my alarm didn't go off. I think that my SD card somehow unmounted (it does that occasionally), and because the audio file my alarm was supposed to play was on the SD card, it didn't play anything. Either way, I missed most of the graphics class 😫 Later in the day, though, we fleshed out the final four project ideas - the semifinals (and hopefully the finals) are tomorrow.

Otherwise, though, nothing of note happened today.

Add comment

-- [TaylorBergquist](#) - 8 June 2009

June 8, 2009

Finally about to start...

We've completed a broad overview of the literature and have embarked on a more specific review of the subareas we are interested in. We have numerous ideas, but I think it would be wise to wait until we know more about what has been done and what each project would entail before we start to narrow it down. Hopefully we can have something concrete by Wednesday or Thursday, so we can do some real planning over the weekend and maybe start coding next week.

Mike introduced me and Connor to a PhD student named Tyler Streeter on Friday. His posters piqued my interest, and Mike noticed and offered to introduce us. Tyler has some great ideas, and I really like what he's doing and how he's going about it. I would greatly enjoy meeting with him over a drink sometime and talking about his work.

On a much less serious note, they had CHERRY BARS (!) in the dining center today. NOM NOM NOM.

Add comment

-- [TaylorBergquist](#) - 5 June 2009

June 5, 2009

Kind of bored...

It seems that we picked the wrong time to get ahead of schedule. There's nothing for me to do but brainstorm right now, which is by nature not something that can be sped up or done all the time. As a result, I simply don't have anything productive to do.

Hopefully we can finalize a short list of possible projects by the start of next week so we can start to flesh out the ideas and ultimately pick just one.

Add comment

JoshuaSituka - 05 Jun 2009 - 14:54

Your group has been working hard nonstop in the lab with that robot. You were working so hard you missed bowling! whats up with that? Have some relaxation this weekend, my group is still workin on getting all the software installed.

MichaelOren - 05 Jun 2009 - 13:27

Lit Review...

-- [TaylorBergquist](#) - 4 June 2009

June 4, 2009

Way Ahead of Schedule

So we got a lot done today and yesterday on our C++ project. It's now pretty much finished. All we have left to do is some tweaking to reduce the likelihood that it will lose track of the face its following and to make its motion appear more smooth and natural. Connor got it to start randomly looking around after it has been a while since it saw a face, and it has a different its facial expression depending on whether it is detecting a face and on how long it's been since it last saw a face.

The full-summer project is going slowly right now - we're just reading up on the field and brainstorming. We really can't make the brainstorming go any faster, although I wish it worked like that.

I have nothing to do :/

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                                                                    [ Add comment ]
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-- [TaylorBergquist](#) - 3 June 2009

June 3, 2009

Cupcakes!

I just completed the face detection and tracking component of the project. It was very simple; there was a lot of sample code online that I could simply adapt to my purposes. Connor and Ugonna's part of the project is less simple, but they've been making solid progress, and once they're done, it should take just a few minutes to get everything working together. We seem to be ahead of schedule 🙂

My phone's OS finally got updated this morning - with a Cupcake! Native pdf support, an updated Gmail app, an on-screen keyboard (to complement the hardware one), video recording, and plenty more. Hopefully Donut doesn't take T-Mobile as long to push out - they got the Cupcake source from Google et al. weeks ago >.<

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                                                                    [ Add comment ]
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MichaelOren - 03 Jun 2009 - 13:24

I'm assuming you have an Android then? How do you like that? A friend of a friend worked on Android (and I saw a prototype a year before launch--it wasn't very impressive at the time). There seems to be positive momentum for it, but not the type of oomph I was expecting (a lot of hardware companies seem to be slow to adopt it despite their initial interest).

-- [TaylorBergquist](#) - 2 June 2009

June 2, 2009

Seattle?*

So yesterday Alex invited Connor, Ugonna, and myself to come with him to a robotics conference in Seattle. ISU is paying for most of it, but even so, it'll be about $250 out of our pockets after it's all done. It

should be worth it, though - this is a great opportunity to network and to see what other people are doing - we may even be able to get some research ideas out of this. Hopefully I will have something useful to talk about at the next conference I attend 🙂

Add comment

BellaManoim - 03 Jun 2009 - 13:03

That's awesome! I'm sure the conference will be a really great experience.

-- TaylorBergquist - 1 June 2009

June 1, 2009

First Work Day

Today was the first real work day - finally, we can start working. We are starting with a C++ course, which includes a project component. We are going to make a demo for the robot for the project, which will be both fun and very relevant to our research. It shouldn't be particularly difficult or time-consuming, which is good - the more time we have to brainstorm this week, the better. We need to decide on a project as soon as we can so we can get to work on it - we have a lot to do. Unfortunately, today was also the day I had to say goodbye to my fiancée. I won't see her for another month. 😞

Add comment

PJ Campbell - 01 Jun 2009 - 21:23

I can't wait to see the demo! Your team's project looks interesting. But it looks like alot of work. I'm sure you'll have fun. By the time you say "I miss my fiancee", the month will be gone.

BellaManoim - 01 Jun 2009 - 13:39

You'll be so busy working, time will fly 🙂

ConnorSchenck - 01 Jun 2009 - 13:26

Yes, I would like to get this mini project done asap, but I think some of the stuff we develop in it could prove useful to our overall project.

-- TaylorBergquist - 29 May 2009

May 29, 2009

Almost ready!

More orientation-style stuff today, but this time it was a workshop on researching in teams. It was fairly helpful; I got to spend a lot of time with Shane and Jivko, and feel like I have a much better idea of what is expected of us and a somewhat better idea of what we can manage in a semester. Last semester, while enjoyable and educational, did not result in any remotely useful contribution. Ideally, I would like to do something this semester that is fundamentally flexible enough to apply to a wide range of problems.

I'm starting to think that that won't be possible. With only nine more weeks, we may not have enough time to do completely new work and apply it to the robot in some sort of demo-achieving way without

cheating horribly.

Connor and I have an idea fairly well mapped out, almost to the point where it could be coded, but I haven't thought of a way to use it with Alex's robot without requiring very high-dimensional input, which would of course lead to absurdly long training times and massive hardware requirements. Something that deals with sound would be ideal, as it has much lower dimensionality than vision. Jivko pointed out that we can make some very restrictive assumptions and still get useful experimental results; I will explore this possibility this weekend.

Add comment

MichaelOren - 29 May 2009 - 14:30

Please put new posts above old posts (otherwise there's too much scrolling as the summer wears on).

-- [TaylorBergquist](#) - 28 May 2009

May 28, 2009

First post!

The first couple of days have been fairly slow - lots of orientations, introductions, and setups. I can't wait to move on and start working. Unfortunately, we still have a week or two of classes before we get any significant research time. We will probably need to get started outside of our scheduled time - the planning phase may take some time, as I at least tend to need to 'sleep on it.'

It's great having a decent internet connection again - and the huge amount of expensive stuff in the VRAC is as fun as ever.

Add comment

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Topic revision: r50 - 2009-07-29 - 18:28:46 - ConnorSchenck