PROFESSOR: Okey dokey. So anybody else with a specific idea? [INAUDIBLE].

AUDIENCE: A fighting game that you control with your head.

PROFESSOR: All right.

AUDIENCE: You have to also-- you have to move your head. [INAUDIBLE]

PROFESSOR: All right, is that sufficient to remember? All right, I don't think we need any more details on that one. That seemed to be sufficiently exciting for folks. All right, there's another hand. Yes.

AUDIENCE: A game with your body. So like, your right hands that create [INAUDIBLE].

PROFESSOR: These are really well scoped for two days. I'm quite impressed. All right, paint with body. And it would be-- so the right hand is a different color or a different brush. And the left hand is a different color, or a different brush, or something like that?

AUDIENCE: Yes.

PROFESSOR: OK. Now, all right-- Yeah-- oh, wait, sorry. We'll start back there and then come forward.

AUDIENCE: A puzzle box. And then one hand would be rotating through the different sides of it. And your right hand would be like the interactive hand.

PROFESSOR: Oh, funky like a Rubik's cube type thing where you have too.

AUDIENCE: Yeah, but one hand is how you move around and the other one's the interactive side.

PROFESSOR: All right. All right, [INAUDIBLE].

AUDIENCE: I have a game where you're like a ninja and then throwing swords are being thrown at you. And then [INAUDIBLE] attack the attacker and you're throwing swords back.

PROFESSOR: That is some solid interaction right there. All right, ninja-- so two stage-- one is dodge throwing stars. The second is throw throwing stars. All right. Oh, yeah--

AUDIENCE: What I'm well you have to indirectly guide little asteroid characters into different places, like a square character into the square place, a triangle character into the triangle place, the circle character into the circle place, but you do it indirectly. You have no control [INAUDIBLE]. We'd have to find-- I mean, a way to search people one way or the other. They behave differently depending on their physics-- their body physics.

PROFESSOR: OK. So some indirect-- it's like lemmings.

AUDIENCE: Lemmings or something like that.

PROFESSOR: Oh, I see.

AUDIENCE: [INAUDIBLE] have some sort of either procedural or physics base behavior. And you don't have a direct-- you can't just grab it and put it there. You have to find another way. Can you blow into the Kinect or something?

PROFESSOR: I think the microphone can detect noise levels, but I don't know if you could detect blowing versus just ambient noise.

AUDIENCE: Yeah, that would be hard. [INAUDIBLE] do your input for that.

AUDIENCE: You'd have to do something that is indirect control.

PROFESSOR: All right. OK. And the end mechanic would be to guide them home or something-- to guide them into some place.

AUDIENCE: Into the right place.

PROFESSOR: Awesome. Yeah--

AUDIENCE: [INAUDIBLE]

PROFESSOR: That's so sweet. I just want to help. No, really, I felt that one right in my heart. That was good. All right. All right, any other fun specific-- oh, yeah.

AUDIENCE: A racing game where if you link to the net and your car could [INAUDIBLE].

PROFESSOR: Nice. That's going to be a really good educational game to put together in order to learn all the mechanics of what's happening inside of the Kinect. That's a really nice learning project. All right.

AUDIENCE: Over there.

PROFESSOR: Oh, yes, sorry.

AUDIENCE: I'm thinking of building a virtual aquarium. So if you're the scuba diver and you wave your arms, the fish get scared and they flock away from you. And then they slowly sneak back and then you move and it would scare you. So basically it's kind of like roll-a-ball, but the cubes are-- [INAUDIBLE] player.

PROFESSOR: They want to be in a certain configuration, but--

AUDIENCE: --until you scare them and they scatter.

PROFESSOR: OK. Cool. Yeah, I like what you called it, virtual aquarium. It's also good one. You're going to learn about area factors and triggers by doing that. Any other? I thought I saw a hand. No, it was just a person doing something.

Oh, Glenn, do you want to make a pitch for your 2D puzzle?

AUDIENCE: I'm sorry I'm late.

PROFESSOR: No, that's all right. I'm sorry to get you mid adjustment on--

AUDIENCE: I had computer malfunction this morning, so [INAUDIBLE].

PROFESSOR: Oh, no.

AUDIENCE: So I'm think trying-- what I've wanted to do for a long time is to deploy 2D grid puzzles. So what I mean by those are things like-- if you know the game of Sokoban. Tetris is a good puzzle. So there's a whole range of these street grids that have cells. So you might have a ten by ten, five by five.

Anyway, so there's a whole range of good puzzles. I've tried to design a bunch of new puzzles. And I would like to learn an infrastructure-- software infrastructure that will let me quickly build versions of these puzzles and deploy them across platform. And so I'm hoping Unity might be something [INAUDIBLE]. So what I'd like to do is-- so are we doing mini projects?

PROFESSOR: Mini projects, yeah-- mini projects that utilize the Kinect in some small way. That way when you do your larger project-- yeah, once you do your larger project, it doesn't have to. So it could be a grid puzzle game that you just move the object around.

AUDIENCE: So what I'm thinking as a first mini project is just to try to learn how to put a grid on the screen-- 2D grid. And have a single element that moves [INAUDIBLE], sort of like roll-a-ball except-- roll-a-ball, except that it would move discretely from one cell to the next and not dynamically. If we wanted to get fancy, eventually we could try to do animation to move the ball or the element from one cell to the next, but initially I'd just have it reposition and jump to a bottom jump.

And so the first pass is just to be able to control-- have a grid, represent the grid, control the ball, and move it around. That's simple, but simple things sometimes take a long time when you're creating software. If we get beyond the first stage of that then I think we'll have a simple game in the past just as an exercise [INAUDIBLE] target, where you move the ball to the target cell and as soon as you hit the target, as soon as you get onto the cell that has the target, the target will jump somewhere else and then move again to try to get to that target. So again, it's a pretty trivial game.

PROFESSOR: I made a website that did that. It had a button, and every time you clicked it it didn't do the thing it said, it just moved.

AUDIENCE: Moved the button?

PROFESSOR: Yeah, moved the button. It just moved itself. So it was like, submit, submit--

AUDIENCE: And then the variation of that that it's not far to get from an actual puzzle that's pretty challenging. So you could put in obstacles on the grids or certain cells, you could make a pass through. You could make a maze, for example. You have to get through the maze to get to get the target.

I developed a version of this that I call multi-target, where you have two or three things that move and then when you control them they all try to move in the same direction, unless one of them's hitting an optical or something. Any that hit opticals wouldn't move. So you could use the opticals cleverly to change the relative positions of the moving objects.

The game objective is to get all of the moving objects onto the target simultaneously. So there might be three targets [INAUDIBLE] movables and you're trying to get all three simultaneously onto [INAUDIBLE]. Things along those lines.

PROFESSOR: Cool. All right, any other specific mini projects? Just you base things-- oh, yeah, awesome-- oops, sorry, what?

AUDIENCE: Where you're-- in a situation where you're angry at everyone. People are trying to comfort you and trying to help you, but you just do-- every single time [INAUDIBLE] hand motions and then they just fly away.

[LAUGHTER]

PROFESSOR: Just like, leave me alone.

AUDIENCE: [INAUDIBLE] they're trying to be like [INAUDIBLE]. I don't know. You have make with your like, with your cursor, but in this case you move your hand.

PROFESSOR: Yeah, a little gesture. Right, right, right--

AUDIENCE: If you do wrong or not in enough time, then--

PROFESSOR: --they, like, hug you.

AUDIENCE: They just come closer.

PROFESSOR: I want to make a comedic joke about it, but I'm too uncomfortable, so I'm not going to. No, I think it is very funny. And I think a lot of people will identify very, very much with it. I don't know how to describe that. The get away game? The--

AUDIENCE: [INAUDIBLE]

PROFESSOR: The loners dilemma?

AUDIENCE: Shoo--

PROFESSOR: Shoo-- that's right. Push away-- all right, I'm going to call it push away affection, although that may be too strong of a title for it.

AUDIENCE: [INAUDIBLE]

PROFESSOR: Right, it is good. So there's some implicit stuff that has happened here, which is some of you are starting to think about the interaction mechanic. So you're thinking about the Kinect in a nice way, which is you can map some type of movement onto an interaction with the game.

So you can think a really simple mechanic, which is like grab, move-- it's exactly like a mouse, and everything is perfectly fine, and my mind knows how to do that because I use mice all day. But with the Kinect, you can do these things like, this means get away from me, whereas this means all right, come in for a hug. And you can start thinking about very different interaction mechanics.

And there was something similar here where just any type of wiggle is a-- scare the fish, which is not something you normally think about when you're thinking of building a video game, but when you have the Kinect you can actually think about these new interaction models.

AUDIENCE: Does the Kinect distinguish between open and closed [INAUDIBLE], for example?

PROFESSOR: It does with 70% accuracy most of the time. Are you guys saving the-- there was a making a tree grow game. Are you saving that for the large project? Yeah, all right, sorry. Never mind, never mind-- forget that I said that.

All right, any other fun things with different--

AUDIENCE: Yeah, pet foam puzzle where you have to navigate the ball from start to end without falling off. But instead of controlling the ball, you are going to push the ball.

PROFESSOR: Mhm, like using force?

AUDIENCE: Yeah.

PROFESSOR: Yes, so platform-- so you're the God of wind. And you can push a gust and it rolls a little bit in that direction. You have to redirect it. Awesome. So that's pretty good. We have space for one, two, three, four, five more. And they don't have to happen. So if you have ideas and they don't happen, no problem.

AUDIENCE: I think I'll just share the tree one. So it's actually taken from the cartoon Totoro from Studio Ghibli. In the middle of the movie there's Totoro who grows this tree. So he brings-- [INAUDIBLE] all of his friends, like the two girls, and they bow like the Asian-- when you're praying you bow. And then as you bow, these seeds grow into little leaves and then grows into a small tree and then grows into a huge tree.

So it's like another form of the storytelling. The little girl's like, your life is going to-- you're growing up. You're going to be in a different state of your life soon. So maybe this game could be-- as you're doing what you referenced with the aquarium too-- when you're making a little gesture, something grows.

PROFESSOR: So anytime you're hands are together and near your head or something like that. Nice.

AUDIENCE: Like Totoro.

PROFESSOR: Like Totoro. Did I spell it right? I just am guessing--

AUDIENCE: Totoro, yeah.

PROFESSOR: OK. So this is a really good gesture that can be easily defined, which is hands come near each other. They come near the head a certain distance and then all three drop down. So you're going to have to have somebody on your team you can program to recognize the gesture, but you have support. And we can help you get that. But, yeah, I like this tree growing one.

To start in the next two days, you could just have gesture recognized and then have something grow. And that's the extent of what you do in two days. It just keeps growing or as long as you're holding it it grows. And that's a really well scoped four hour thing to try to do with the team.

AUDIENCE: This is similar to the paint one, but what if it was pair one instead? Where instead of painting, you're [INAUDIBLE]. The second form of attraction would be water. So then you could see which way water pass through whatever the [INAUDIBLE].

PROFESSOR: Nice. Terraforming new-- cool. I don't know if I'll use that space, but I left it there. I'm going to throw one out, which would-- oh, no, never mind. I'm not going to say that. It would be way too complicated. Forget that-- my brain is usually too confused to--

AUDIENCE: How good is [INAUDIBLE] resolving a position if you jump from one point to another?

PROFESSOR: Like if you jump like that?

AUDIENCE: It can see your feet very well, as long as you point it down, though, at first.

AUDIENCE: I'm thinking, maybe, that you can just make this Super Mario collapsible bridge thing-- you have to cross a bridge within a limited time. Because each [INAUDIBLE], once you touch it it would just fall down and you just have to--

PROFESSOR: I see. So it's scrolling at you and you have to jump across the bridge.

AUDIENCE: You have to run fast and also precisely on that block, otherwise you'd miss it and you'd fail the game.

AUDIENCE: That would be very doable.

PROFESSOR: --very doable. I don't know why I wrote the word adventure, but I did. I'm going to draw a foot-- a little person's foot. That's a person and here is-- I don't know if that's-- something like that.

All right, two more. It's for my OCD. I don't want to leave part of the board left uncovered. It's not necessary, but it would make me so happy inside. What's other cool things that people do? Food or--

AUDIENCE: How about [INAUDIBLE] bowling, but there's obstacles in your way as well? And so once you release the ball, you can also try to change the direction of the ball by like-- [INAUDIBLE].

PROFESSOR: So the actual bowling that we do where we're like, yeah, come on, lead to the right. That's really good. You're capturing a very intuitive interactive there, which is you roll it and you go, come on. OK. So we're going to call it real bowling.

AUDIENCE: Jedi bowling.

PROFESSOR: Jedi bowling-- nice. And then you can have little mice run out across because your turning and you're like, no, no, don't hit the mouse, no. All right, and then there was another hand--

AUDIENCE: Maybe if you had all little magnet balls-- and I'm not sure if the Kinect's accurate enough, but to be able to just play with a virtual ball of magnets.

PROFESSOR: I would love it if somebody tried that for the mini project. And then if it went fairly well, did that for the main project. And then I could tell a really good story about how this class led to the thing that we built this class for, which was to do something that's an interactive science demo, and would also feed into our pitch to make a VR cave inside of the university. You nailed it. You were holding that one for last and I appreciate it.

So it'll be something-- so it doesn't do so well on fingers, but it'll be something where you can move-- it'd be like as if you're in a ball pit, but the balls are all kind of magnetic and you can move them with your body. And then maybe somewhat very related to the fish thing. So just a different physics that's governing the flocking of these objects that are around your body. OK, cool. Anybody feel like they had one in and they were too shy to say it, but now they feel like they should because you can? Nope-- all right.

AUDIENCE: Idea--

PROFESSOR: Oh, yeah.

AUDIENCE: So this may be a little advanced for a [INAUDIBLE] project, but I'm thinking of 3D rotations of multi cell pieces, like 3D Tetris type pieces that could be-- I assume you can make pieces in unity that are pooling together cubes or something and so that they all move together. And so the idea would be to just come up with reasonable Kinect gestures that would rotate in 3D. And so the mini game could be-- it could be you've got a piece that you have to match to a target orientation. So maybe a little display shows the orientation you're aiming for and you just have to rotate the piece to get it. [INAUDIBLE].

PROFESSOR: That is good. And there was another one over here, which would have a similar--

AUDIENCE: --puzzle box, bottom left.

PROFESSOR: Bottom left-- puzzle box. Puzzle box, yes-- all right, so this one was something like, you have a box, and you move it, and you can rotate it in some meaningful way. And then this one allows you to do some interaction. So maybe you're painting the sides of a ceramic vase or something. So these two would have very similar mechanics.

All right, so the next thing is you're all going to stand up and-- is this going to work with this many people? Yeah, we're going to explore. So you're going to stand up, and you're going to come up here, and make a vote for the ones-- oh, do you want a picture of that? Let me get out of the way. I think there's about 10,000 sales there.

OK. So come up and do a vote. So if you are interested in doing it come-- oh, sorry, I thought I was in your way again. Come up and just put a little check mark, which is like, I'm interested in this thing and this is going to help us self-organize in some way.

And we can narrow this down to-- how many people are in this room? Three, six, nine, 12, maybe 35 and-- so getting this down to eight to nine projects. So you're going to want to be in a team of three, but I don't want you instantly to go like, I already know somebody so I'm going to be in their team no matter what. Try on the mini project, and then I won't make you do it on the big project, to go based on your interest and maybe collaborate with people that you have never talked to.

And it will only be two days, so it's at worse going to be two days where you get to sit and play with unity and not talk to people that you don't want to talk to. So this is the time to do that experiment. And you might make a new friend, who knows.

OK. You can either come up and do the check box thing or find some way to self-organize around which project you want to do. And I know that this will be chaos for 15 to 20 minutes. And then once you organize around a project that you want to do, start-- well, no. For 15 or 20 minutes, try to figure out who you want to work with on which projects. And then we'll come together and you'll start to refine it.

It doesn't have to be the exact vision of the person who wrote it on the board, but there's something about one of these projects that interests you. Maybe it's you want to know how to do the hand rotation or arm rotation type thing. Maybe it's that you want to understand how just to detect this thing and do flocking algorithms so objects will move in a certain way. So figure out something about one of these that interests you.

Go find the other people who are interested in it by some method, and talk to them, and see if it seems like a good fit, or if they have-- because you may come up and somebody's like, I love fish. And somebody else is like, I want to detect motion like this. And you decide not to work together because one of you really just wants to build fish and the other one just wants to do body motion. So try to do something. I like this chaos.

Should would do the name game again or do something to make us more extrovert? Are we feeling confident? OK. On the count of three say a number between zero and 10, which represents how introverted and shy you feel right now. I'm sorry, what?

AUDIENCE: 10 being what?

PROFESSOR: 10 being like, I am so ready to-- oh, yeah, right. You're right. That would be an inverse-- all right, so 10 means I'm just going to stand up and go hug a stranger right now. And zero being, I am just so terrified to stand up and talk to somebody right now, not even the people I know, do I want to talk to. So 10 being super extroverted, zero being super introverted-- one, two, three, seven.

AUDIENCE: [INAUDIBLE]

PROFESSOR: All right, so five to four. All right, we're going to try to get that to a seven and then we're going to have you get up and talk to strangers. So how about we close our computers now, and I'm going to walk you guys through, and then do a big circle around the room, and we're going to do an improv game to make ourselves feel a little more extroverted. And it'll be super fun, I promise.

So close your computers. Move the tables to the center of the room. Make a big circle around the room.