PC
MAGAZINE

ROBOTS
WANT
YOUR JOB

What's New Now

INTEL PURSUES GROWTH BEYOND PC MARKETS

MEET JOSH: JEEVES FOR THE 21ST CENTURY

IN GOING GLOBAL, NETFLIX CURBS PROXY USE

CHAT: PATH OF EXILE'S PATH TO INDIE SUCCESS

TOP GEAR

Meet Josh: Jeeves For the 21st Century
BY SOPHIA STUART

NO JOSHING
Can't afford a butler of your own? No worries. The new AI-powered Josh from JStar can answer all your questions and cater to your whims, no matter where you are.

Ready to have a rapport with your residence? Meet Josh, a new AI-powered home management system, with a personality of its own (actually several, but more on that later).

Picture the scene: You've just arrived off a long-haul flight from Hong Kong after another successful business trip. While in the high-speed electric overground transit from the airport, you call home.

It answers.

"Hello."

"Hi. I'm heading home to the apartment in Manhattan."

"ETA in 25 minutes?"

"Sounds about right. Thanks for checking the traffic."

"Sure thing, boss. So, at 05:13 hours, transitioning temperature in the library to 72 degrees, master bedroom to 71, lights to 'attractively dimmed,' audio

streaming to Coltrane, assessing filtration levels for a hot shower in ensuite bathroom and powering on ice cube maker."

"Thank you."

"You're most welcome. Please let me know if there's any other way I may be of assistance."

It sounds like a scene from *Her*. And in fact, Josh's creators, Alex Capecelatro and Tim Gill, did name one of their beta test home systems Theodore Twombly in homage to director Spike Jonze's 2013 utopian-dystopian film. *PC Magazine* went to Beverly Hills to meet Capecelatro and Gill at Beta 1, a home outfitted with the Josh system.

Gill made his fortune with Quark, the content automation platform he founded in 1981. He's since been busy with natural language processing, artificial intelligence systems, and other deep mathematical geek conundrums.

Capecelatro, meanwhile, has never known life before AI (or the Internet, for that matter). A two-time software start-up founder himself, he launched smart social network app At The Pool, which became cool place finder Yeti; he sold both before the age of 28. Prior to that, he did stints as a research scientist at the Naval Research Lab and worked on the Karma concept car at Fisker Automotive.
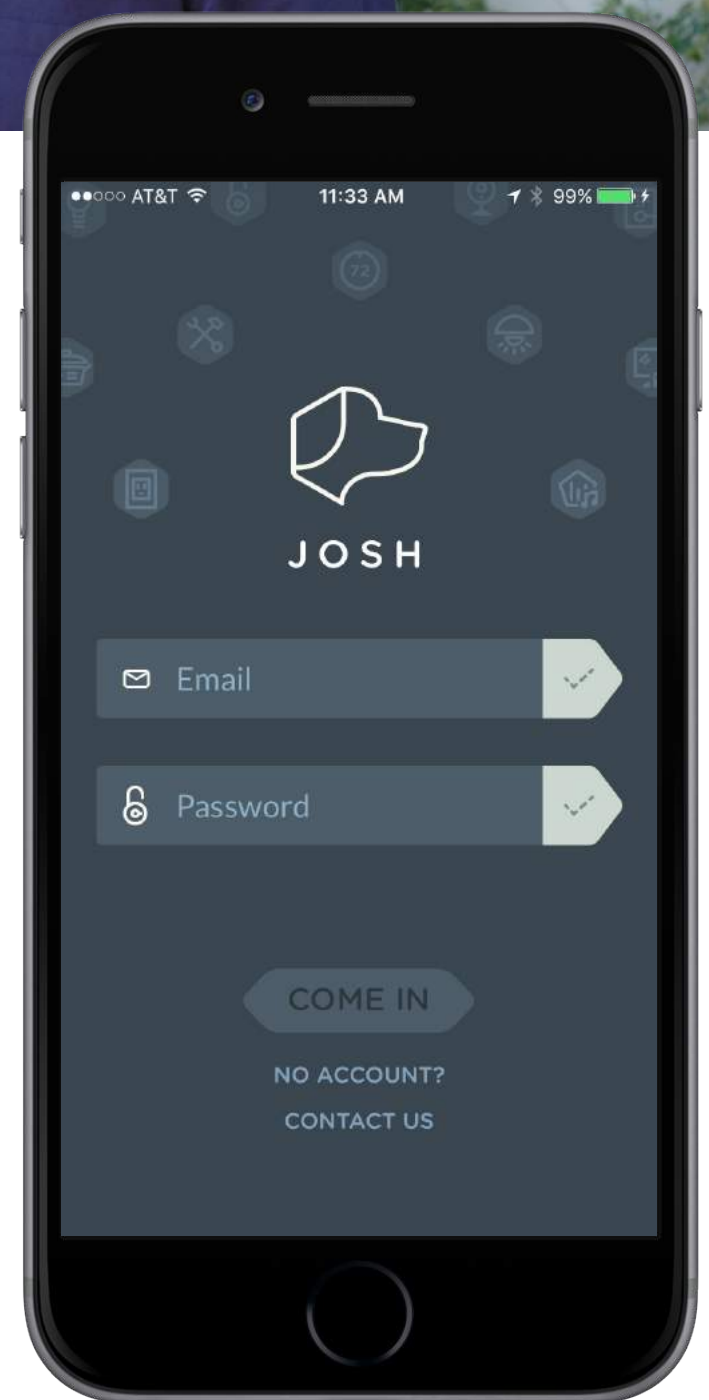
The two met when Gill became an advisor to Capecelatro's last company. They started talking about the potential for true AI and JStar was born, with Capecelatro as CEO and Gill as CTO.

"My initial motivation was to have something to do," Gill said, laughing. "I've been playing with natural language systems and voice response systems since high school. I cannot be away from computer programming for very long, and Josh has kept me occupied for 50 to 60 hours a week for the past two years."

The time is right for sophisticated automation: We now have natural language processing, text-to-speech, and the Internet of Things (IoT), with many available smart-home-based devices like Nest, Sonos, and Lutron, all of which work with Josh. This stuff is no longer vaporware. But there's a catch.

"Each of those devices we support—and we want to be device agnostic—is unique unto itself," Gill said. "There are no actual standards for IoT. That's what we wanted to build."

"Right now," added Capecelatro, "you'd either have to spend hundreds of thousands on a custom integrated system to connect them together, or you'd have 20 different apps to manage them. We thought there was a better way. What if you could just talk to your house?"

To accomplish that, Capecelatro paired his expertise in recommendation engines with AI-based pattern recognition. Basically, Josh learns more about its owner over time to become smarter.

It was time to see it in action. Capecelatro spoke conversationally into his phone. He selected the male voice (the aforementioned Theodore), but there are a variety of options (such as a female voice from India) so international customers can customize their Josh as they wish.
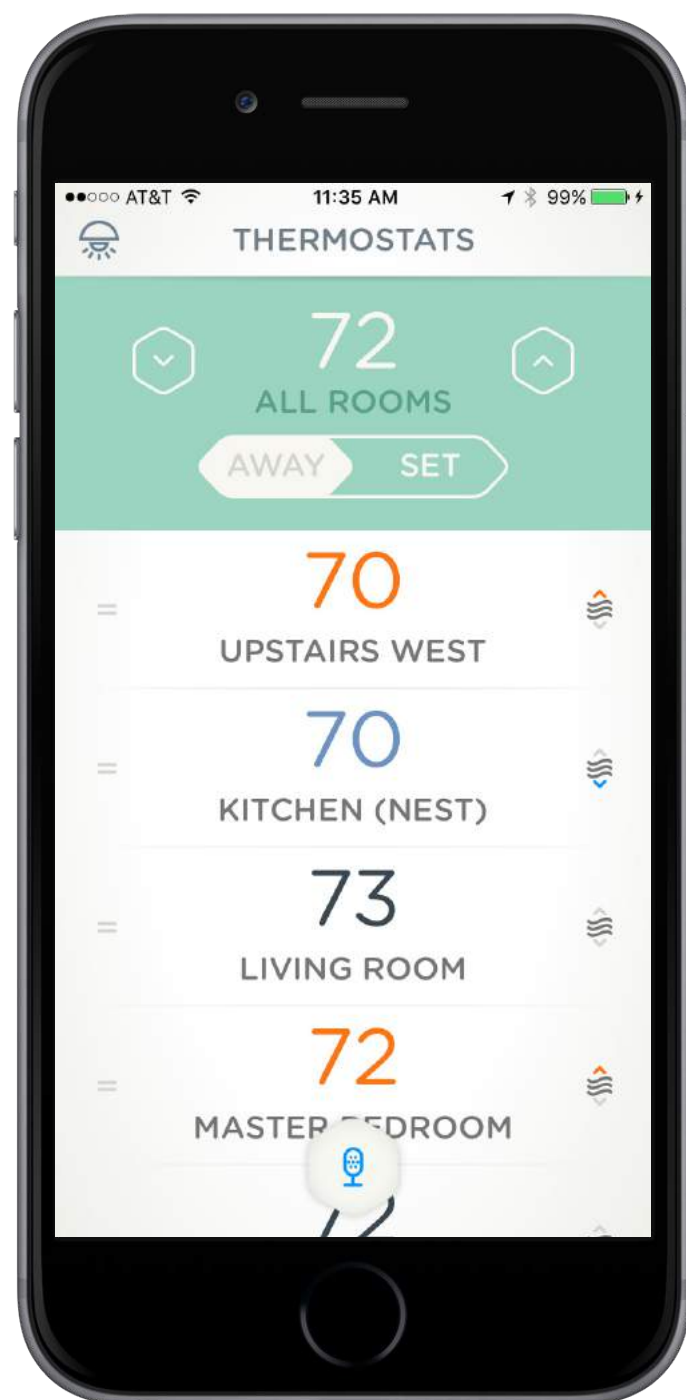
WARM FRIENDSHIP
The Nest Learning Thermostat (below) is one of the many smart home devices that works with Josh.
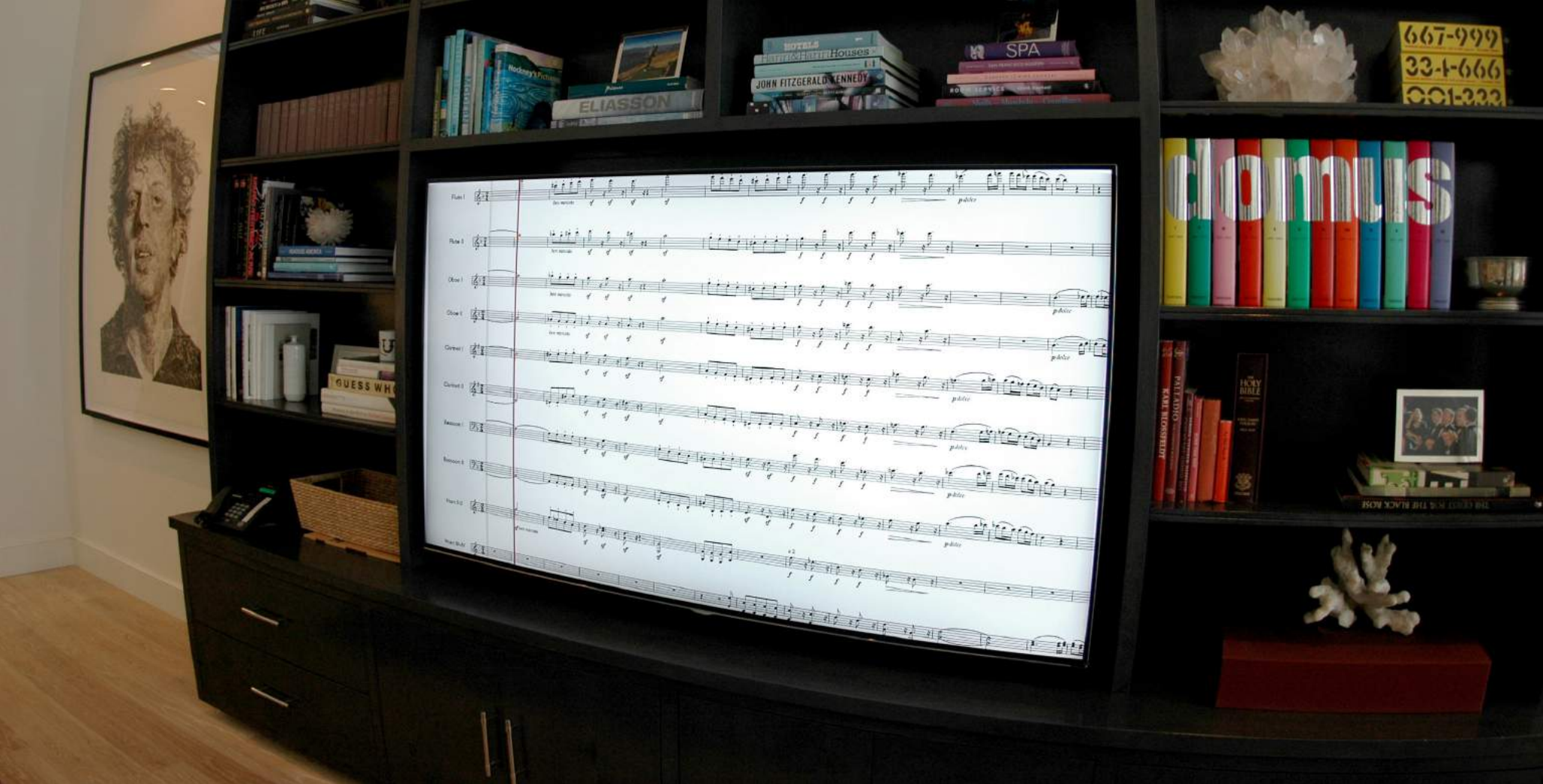
After a few runtime scenarios—asking about the temperature in different rooms, turning lights on and off again, then revealing the hidden cameras in the room—Capecelatro said, "Play Nina Simone."

"Playing Nina Simone's 'I Put a Spell on You' from Spotify," Josh responded.

The sound system was sublime. The entire ground floor of the house filled with the soaring string section.

So how does it work?

Josh runs on J++ (not to be confused with Microsoft's Visual J++), the software language Gill created by extensively modifying bits of C++ and building in self-diagnostics. This means your house can tell you not only that the thermostat in the bathroom upstairs is malfunctioning, but it can request a software upgrade patch and a hard restart to the heating system while you're out of town. Clever stuff.

Josh exists both in the cloud and locally within your home network. If your Internet connection goes down, Josh can still work, though cloud-based individual components, such as Nest, will not.

There is significant investment in security and an override for every device that has one. Switches will still turn lights on and off. But don't lose your front door key, just in case, and obviously reconsider tricking out your house upstate with any pod bay doors that don't have manual locks.

JStar is committed to staying nimble during this early stage. The entire company is less than a year old and Gill and Capecelatro want to get it right rather than go mass-market instantly. Installation starts at $10,000, with a

$5,000 deposit. That includes a dedicated Josh server that plugs into the Wi-Fi router and an electrical outlet, full customization of your house, as well as apps to control and monitor things at home and remotely.

"The plan is to be very controlled with the rollout," confirmed Capecelatro. "We have 285 people signed up to be beta testers, but we don't want to build out more than five a month, which is why we're only focused in the U.S.A. right now. We need to be able to get to the home easily, set it up, test, debug, and so on."

"Every home is different," said Gill. "For example, we're sitting here in Beta 1, which has Sonos Play:3 speakers, but we just went into a home that had the latest version and we needed to write new components for the Sonos Playbar to control them via Josh."

So what about plans for the future once smart houses, like the smartphone, become standard-issue? JStar is keen on opening up Josh to third-party developers.

"Quark was made successful for a variety of reasons," Gill said. "But one was because it was a platform that third-party developers could write for. It's incredibly important to do the same here. We've made Josh open so that we can support that. Theoretically, someone could write a translation program into French. If someone can make the platform do more, that's great, because we'll sell more Josh servers in the end as a result."

Of course, the IoT isn't just about what's inside the home. It will also be about responsive infrastructure in cities and a host of other scenarios.

"We want Josh to be able to talk to everything," Capecelatro said.

"And we want you to be able to use whatever you want to talk back to Josh—a phone, tablet, TV—I don't really care," agreed Gill. "Essentially, we're building Josh to be an OS for the entire IoT universe."