# Tom Donahue

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## Experience

2016 – 2018 **Character AI Engineer**, *Jibo*, Boston, MA

Member of the team tasked with making the first social robot for the home—Jibo—feel lifelike, produce dynamic behavior, and ensure a consistent character experience across his wide range of interactions and skills.

- Co-architect and lead developer of *Embodied Speech*, a subsystem that blends Jibo's speech with animation, graphics and sound to create character-rich dialog interactions.
- Lead developer of *Chitchat*, Jibo's ontological dialog ability, and co-led *GQA*, Jibo's general question-answering service—the most frequent user-initiated interactions with the robot.
- Co-designed and implemented a novel, distributed robot/cloud skill architecture resulting in a significant interaction latency reduction and a far more scalable content-delivery pipeline.
- Led development of an animation database, a core module that enables queries for, and configuration of, animation and sound assets for on-demand playback and control on Jibo.

**Keywords**: TypeScript / JS / Node, Python, NLP/NLU, HRI, OSX, Git, Agile (Scrum)

2014 - 2016 **Robot Software Engineer**, *Softbank Robotics (Aldebaran)*, Boston, MA

Member of a small agile team working across the Aldebaran stack—from NaoQi middleware modules to core applications.

- Designed and built *Act* framework for semi-autonomous multi-robot–human interactions.
- Co-developed *ALTactileGesture*, a high-level touch sequence gesture recognition module.
- Released *Mad Chats*, an interactive Mad Libs-esque word game played between human and robot.
- Part of the team that designed and built a core application launching and dialog interaction for all Aldebaran robots.
- Designed, built and regularly demoed semi-autonomous robot greeter for range of external clients.

**Keywords**: Python, JS, C++, HTML/ CSS, HRI, Linux, Git, Agile (Scrum)

2012 - 2014 **Research and Teaching Assistant**, *Human Robot Interaction Lab*, *Tufts University*, Medford, MA

Areas of focus: human-robot teaming, situated natural language understanding and generation.

**As research assistant:**

- Implemented distributed notification system for ADE robotics middleware.
- Overhauled system GUIs for ADE middleware, yielding improved stability, efficiency and a simplified UI.
- Developed data-mining tools for rich audio and video corpora and annotations.
- Designed and built web-survey platform for multiple HRI studies.
- Designed, conducted and analyzed multiple HRI studies investigating multiple factors within human-robot teams.

**Keywords**: Java, Clojure, C++, JS, HTML/ CSS, PHP, HRI, NLP, Linux, Git, SVN, LaTeX, R

2010 - 2012 **Research Assistant**, *Computer-Human Interaction Lab*, *Bowling Green State University*, Bowling Green, OH

- Designed, built and tested an alternative UI for World of Warcraft for the visually impaired community.
- Investigated the learning benefits of—and trade-offs between—mouse, touch and tangible input systems via a novel deduction puzzle/ game.
- Part of a team that developed a novel tangible password input system.

**Keywords**: Java, C++, HCI, Tangible/Touch UIs, Accessibility, Windows

## Technical Skills

### Languages

Core: Typescript / JS, Python
Rusty: C++, Java, Clojure, HTML/ CSS
Familiar: PHP, Scheme, SQL, R

### Tools

src Control: Git, SVN, Github, Gerrit
Cloud/DB: Docker, MySQL, Neo4j
Writing: LaTeX, G Suite

### Platforms

Robotics: Extensive development experience with a range of robotics platforms, including Jibo, Softbank/ Aldebaran's Pepper and Nao and ADE—a research-focused, distributed, multi-agent robotics middleware.
Unix: Considerable Unix (Linux, OSX) development experience and comfortable with command line interfaces.

## Education

2012 - 2014 **Doctoral studies in Computer Science & Cognitive Science**, *Tufts University, Medford, MA*
*Withdrew in good standing from joint-Ph.D. program*

2011 - 2012 **M.S. in Computer Science**, *Bowling Green State University, Bowling Green, OH*
*Concentration: Human-Computer Interaction*

2007 - 2011 **B.S. in Computer Science & Psychology**, *Bowling Green State University, Bowling Green, OH*
*Minor in Mathematics, Cum Laude*

## Patents

2017 Cynthia Breazeal, **Thomas Donahue**, et. al.
*Embodied Dialog and Embodied Speech Authoring Tools For Use With An Expressive Social Robot*
DN/US20180133900. JIBO, INC. Boston, MA. US. *Patent Pending*

## Publications

2015 **Thomas Donahue**, Matthias Scheutz.
*Investigating the Effects of Robot Affect and Embodiment on Attention and Natural Language of Human Teammates.*
2015 International Conference on Cognitive Infocommunications (CogInfoComm)

2014 Cody Canning, **Thomas Donahue**, Matthias Scheutz.
*Investigating Human Perceptions of Robot Capabilities in Remote Human-Robot Team Tasks based on First-Person Robot Video Feeds.*
2014 International Conference on Intelligent Robots and Systems (IROS)

2013 **Thomas Donahue**, G. Michael Poor, Martez Mott, et. al.
*On Interface Closeness and Problem Solving.*
2013 Conference on Tangible, Embedded and Embodied Interaction (TEI)

2012 Martez Mott, **Thomas Donahue**, G. Michael Poor, et. al.
*Leveraging Motor Learning for a Tangible Password System.*
2012 Conference on Human Factors in Computing Systems: Extended Abstracts (CHI)

2011 G. Michael Poor, **Thomas Donahue**, Martez Mott, et. al.
*Access-a-WoW: Building an Enhanced World of Warcraft UI for Persons with Low Visual Acuity.*
2011 International Conference on Universal Access in Human-Computer Interaction (UAHCI)

## Achievements

2017 Jibo named Time Magazine's #1 of the "25 Best Inventions of 2017"