

# NATURLIG SPRÅK SOM GRENSEFLATE MOT INTELLIGENTE SYSTEMER

INTRO MODULE 2 – INTRACTING WITH AI

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● chatbot

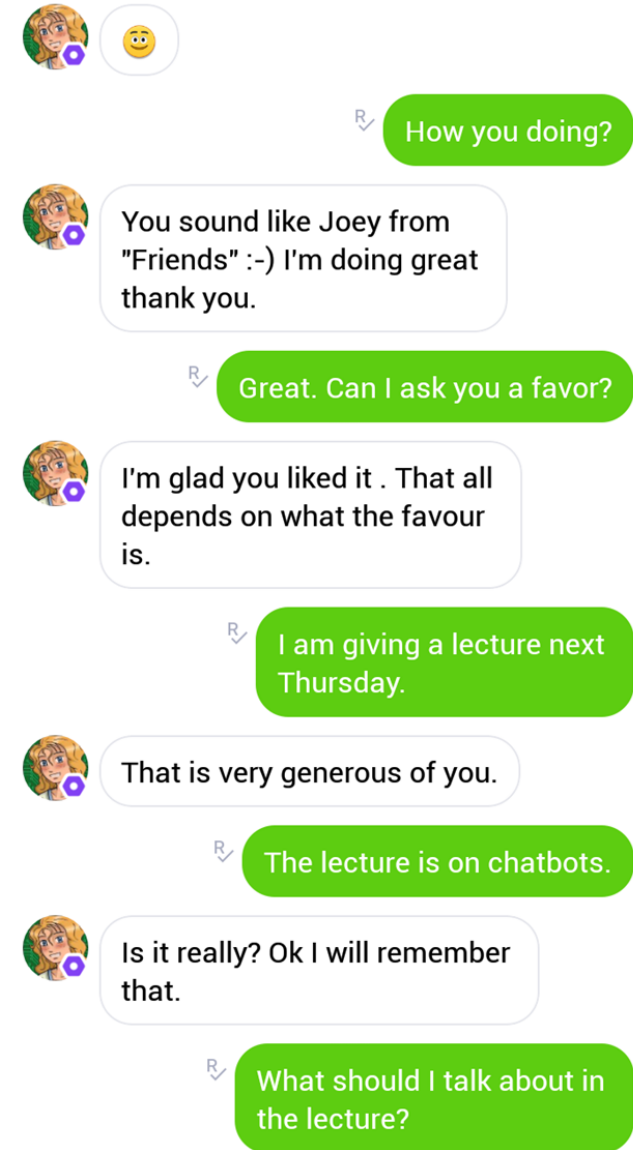
Worldwide, 2004 - present

Interest over time



# Chatbots

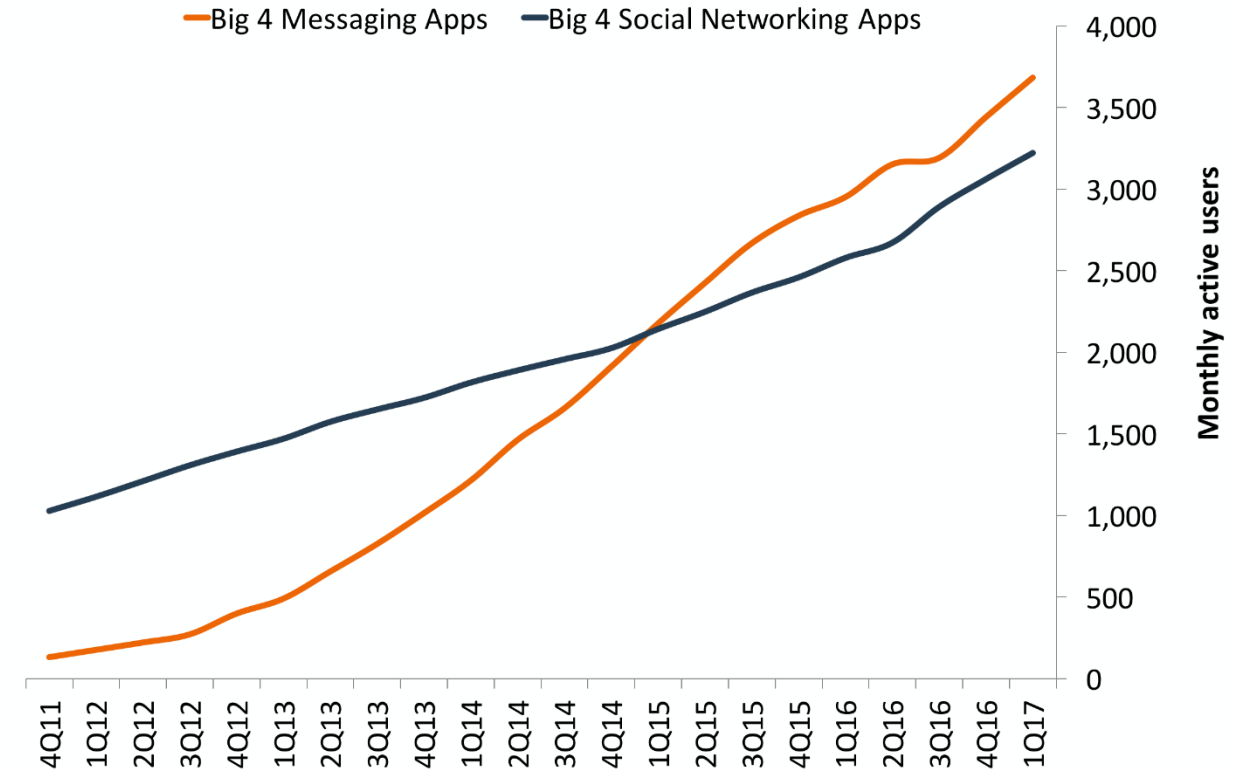
Presented by Mitsuku –  
winner of the Loebner  
Prize 2013, 2016, 2017



Chat an ever more important communication platform

## Messaging Apps Have Surpassed Social Networks

Global monthly active users for the top 4 messaging apps and social networks, In millions



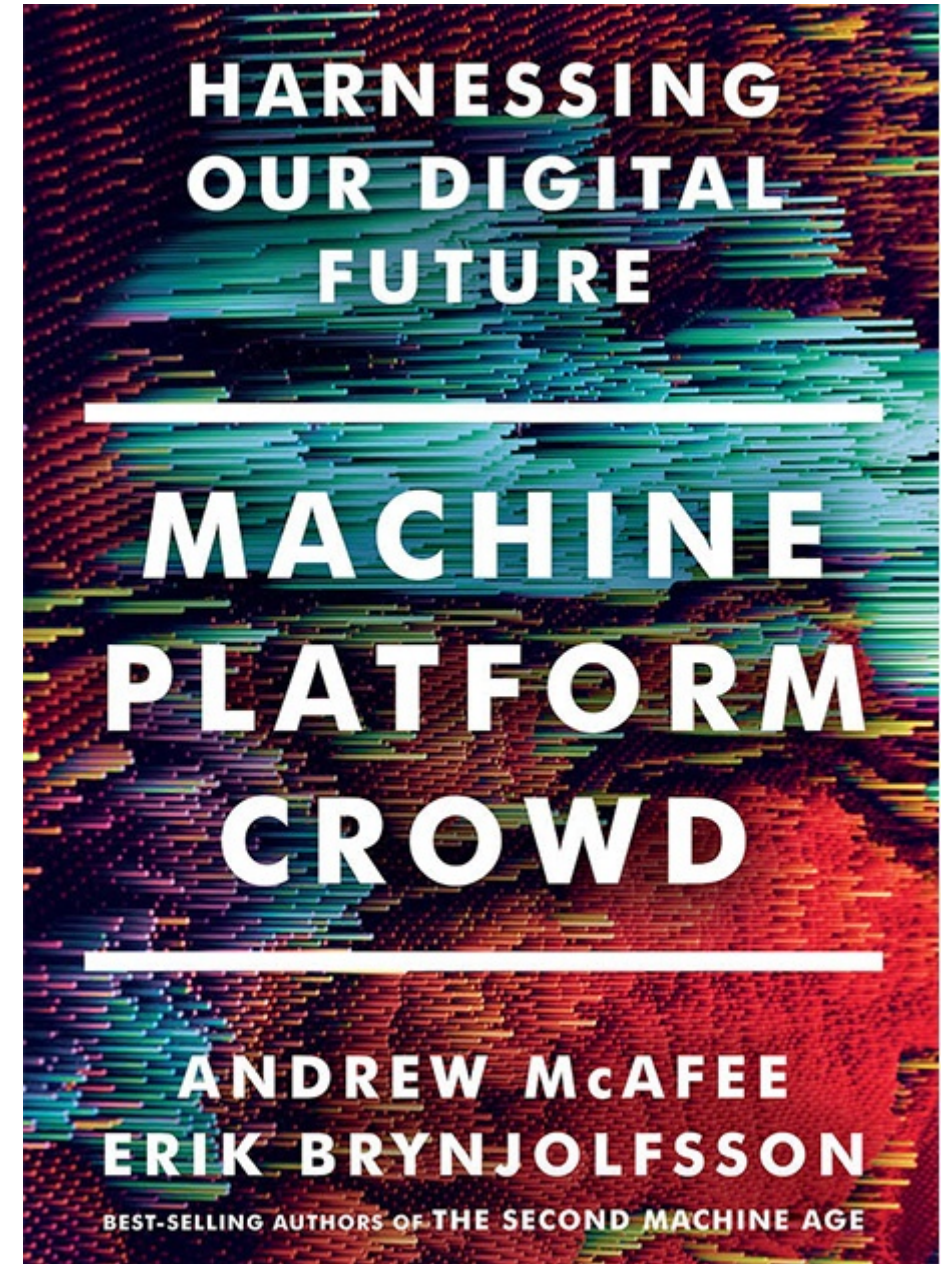
Note: Big 4 messaging apps are WhatsApp, Messenger, WeChat, Viber.

Big 4 social networks are Facebook, Instagram, Twitter, LinkedIn

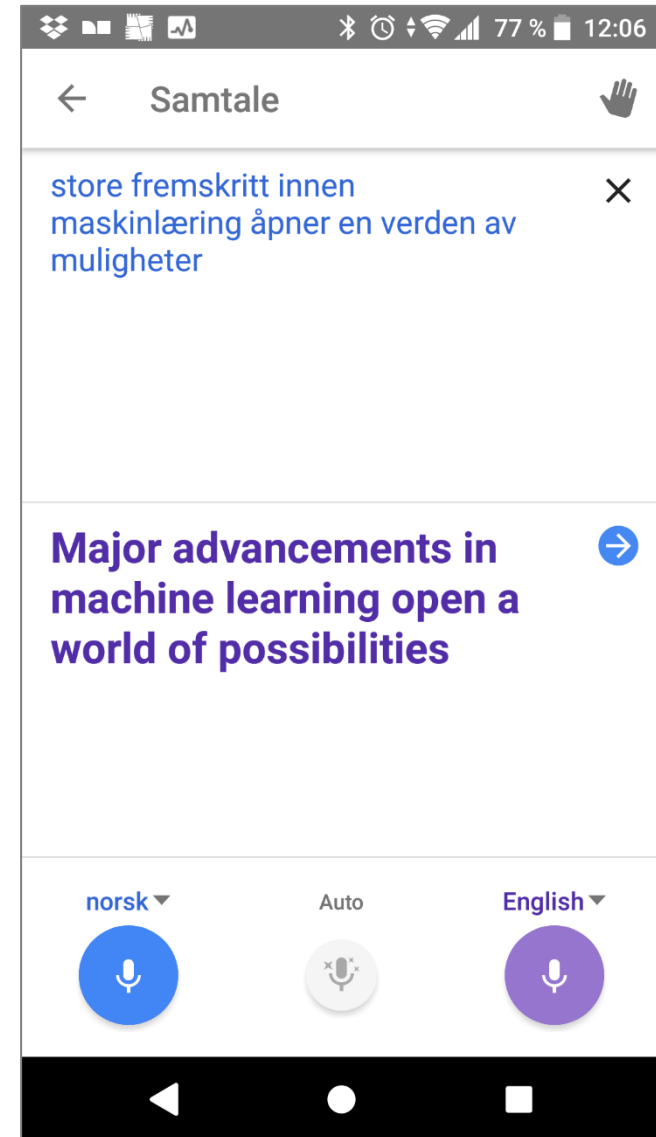
Source: Companies, Apptopia, TechCrunch, BI Intelligence estimates, 2017

BI INTELLIGENCE

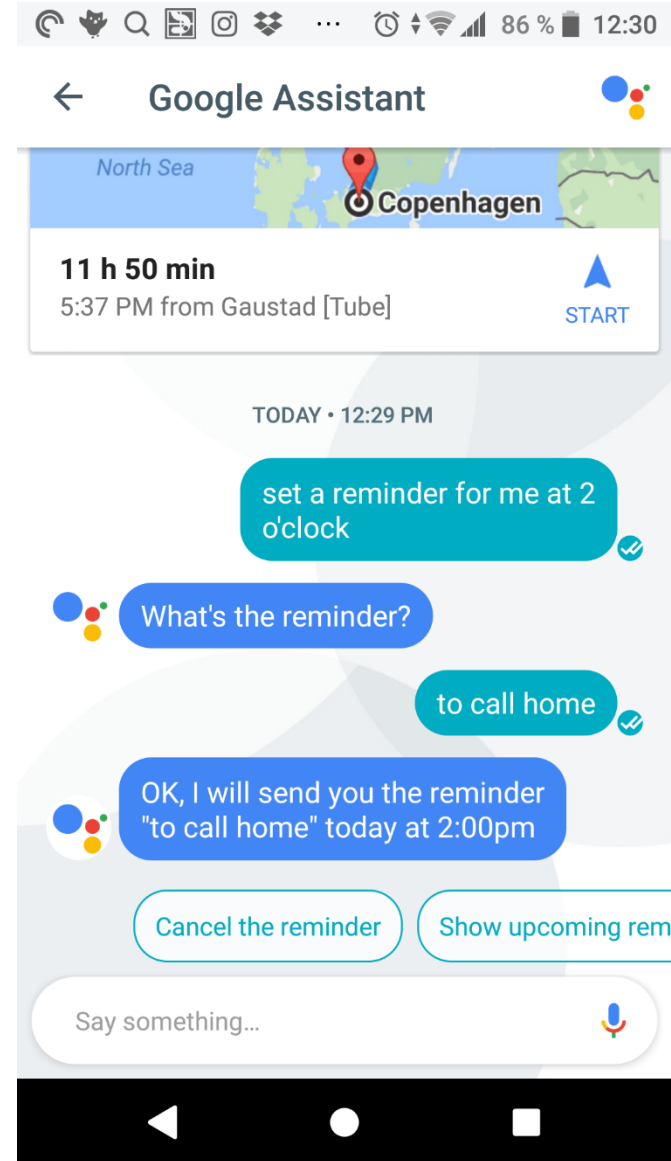
Progress artificial  
intelligence /  
machine learning



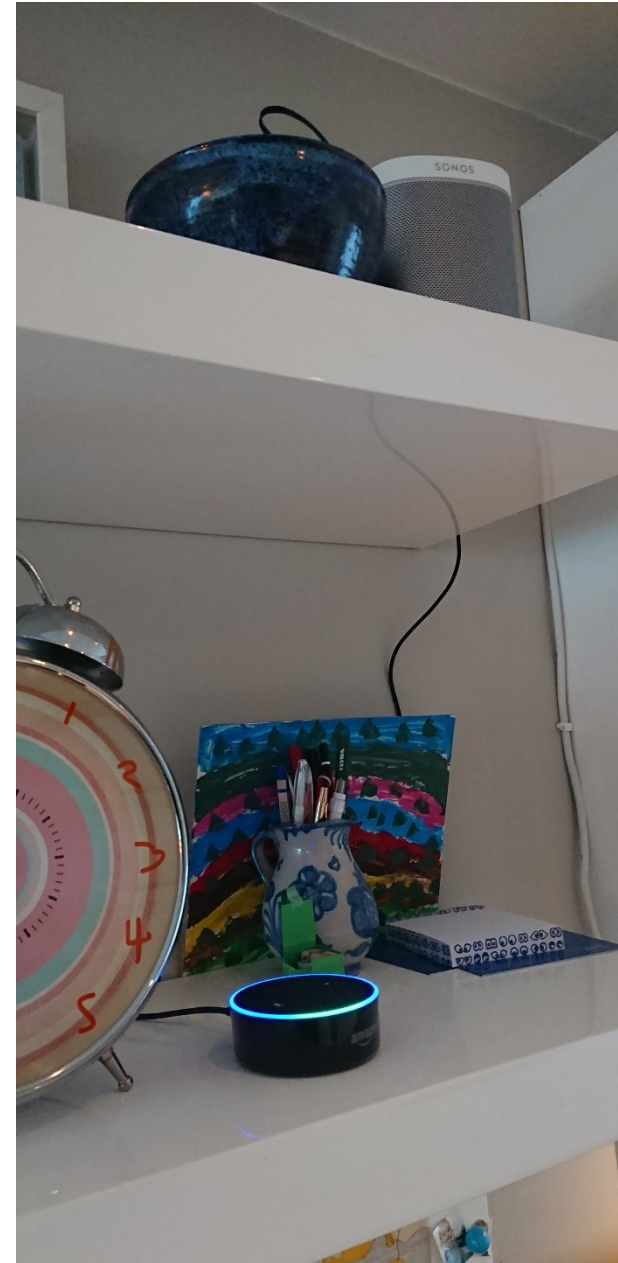
# A world of opportunities



The computer wants  
to talk to you



The computer wants  
to talk to you





Bumps in the road

Sorry, I don't  
know that



# Bumps in the road



# Bumps in the road

... and when the system seems human-like the bumps can grow even bigger

## “Like Having a Really bad PA”: The Gulf between User Expectation and Experience of Conversational Agents

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### ABSTRACT

The past four years have seen the rise of conversational agents (CAs) in everyday life. Apple, Microsoft, Amazon, Google and Facebook have all embedded proprietary CAs within their software and, increasingly, conversation is becoming a key mode of human-computer interaction. Whilst we have long been familiar with the notion of computers that speak, the investigative concern within HCI has been upon multimodality rather than dialogue alone, and there is no sense of how such interfaces are used in everyday life. This paper reports the findings of interviews with 14 users of CAs in an effort to understand the current interactional factors affecting everyday use. We find user expectations dramatically out of step with the operation of the systems, particularly in terms of known machine intelligence, system capability and goals. Using Norman's ‘gulfs of execution and evaluation’ [30] we consider the implications of these findings for the design of future systems.

### Author Keywords

Conversational Agents; mental models; evaluation

### ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

### INTRODUCTION

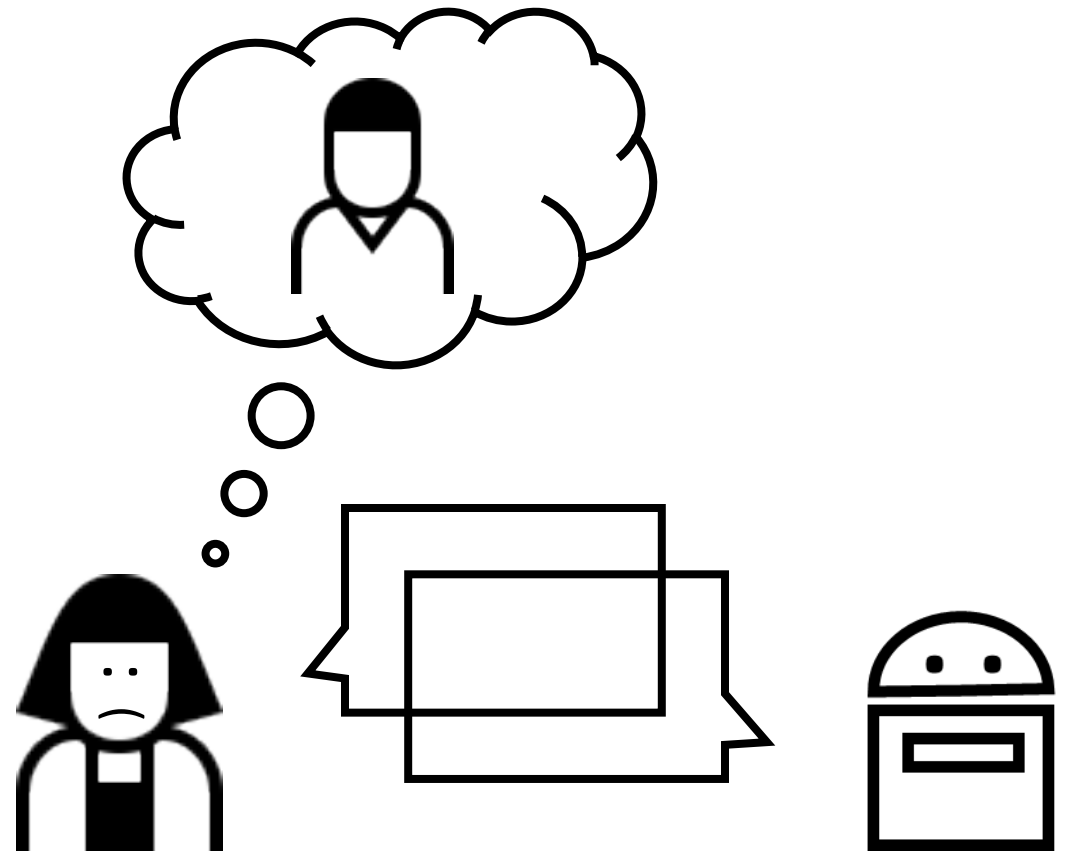
Framed as “dialogue systems often endowed with ‘humanlike’ behaviour” [43 p.357], conversational agents (CA) are becoming ever more common human-computer interfaces. The launch of Siri (Apple, 2011), Google Now (2012), Cortana (Microsoft, 2015), and Alexa (Amazon, 2015) indicate a spike in mainstream market commitment to this

their respective operating systems and Alexa finds its home in the form of Amazon Echo, giving us every reason to believe that spoken dialogue interfaces will become the future gateways to many key services.

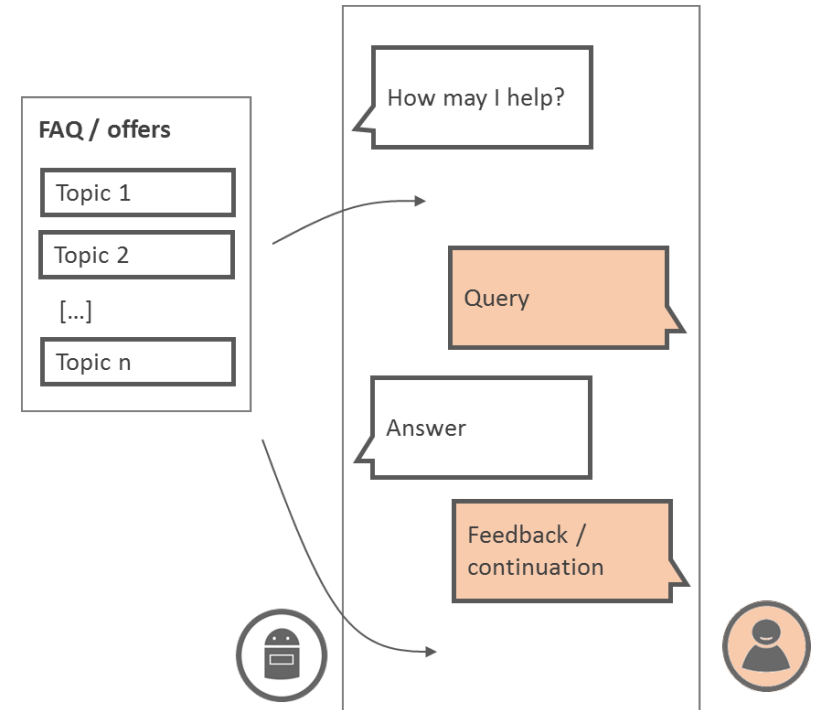
Whilst the past 4 years have clearly seen a reinvigoration of such systems, this is very much a return to an old idea; that conversation is the next natural form of HCI. It has also long been argued that “when speech and language interfaces become more conversational, they will take their place along with direct manipulation in the interface” [6]. Moreover, they will have the potential to enhance both the system usability and user experience [43]. However, despite these expectations, the weight of research has veered away from such single modalities and tended towards multimodal developments, with a focus upon embodiment and anthropomorphism rather than voice alone. Indeed, our fascination with computers that converse can be traced back as far as 1964 when, seeking to create the illusion of human interaction, Joseph Weizenbaum of MIT created Eliza [10], a computer program that responded on the basis of data gleaned only from human respondents’ typed input. Whilst script-based, it is considered the first convincing attempt to simulate natural human interactions between a user and a computer. This chatterbot, rudimentary by today’s standards, was designed in the form of a Rogerian psychotherapist and, due to the high level of emotional involvement exhibited by users, was hailed as the beginnings of an automated form of psychotherapy [45]. Fast-forward 50 years and, whilst psychotherapy-bots for the time being remain the stuff of science fiction, HCI is again seeing moves towards serious adoption of naturalistic human-computer dialogue systems.

# Bumps in the road

... and when the system seems human-like the bumps can grow even bigger **if you do not understand the systems limitations**



The importance of ...  
Human-chatbot  
interaction design



Dialog as design-material

# Social Health Bots

How to utilize chatbots for health purposes?

Supported by HELSEVEL, Research Council of Norway



## Chatbots som kilde til helseinformasjon

Kan chatbots gi unge (16-26 år) bedre tilgang til helseinformasjon?

Chatbots er dataprogrammer som kommuniserer med mennesker gjennom naturlig språk - skriftlig eller muntlig.

Det er særlig fremskritt innen kunstig intelligens, og utbredelsen av nettbaserte meldingsplattformer, som gjør chatbots til en lovende teknologi for helse- og velferdstjenester.

I prosjektet **Social Health Bots** undersøker vi muligheter og utfordringer ved å ta chatbots i bruk som kanal for helseinformasjon til unge.

Vi tar frem ny kunnskap og utvikler prototyper av chatbots, for å få erfaring med ulike bruksmåter for denne teknologien.

### OM PROSJEKTET

Prosjektperiode  
2017-2020

Program HELSEVEL

### PARTNERE



### STØTTET AV



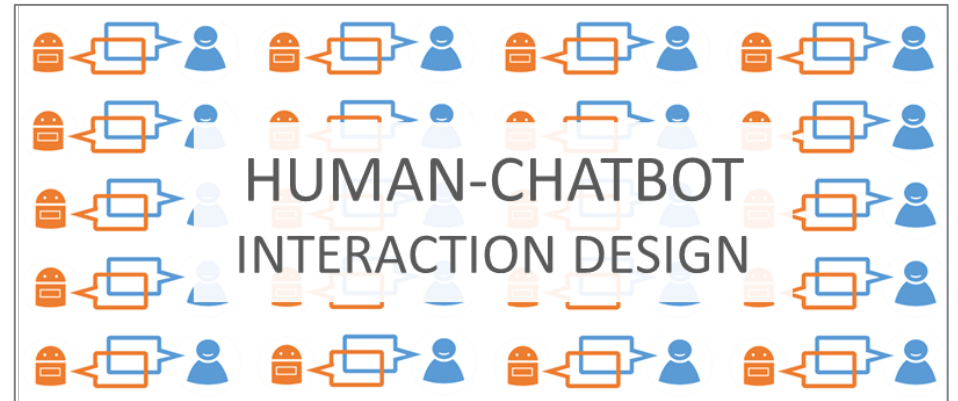
**Kontakt:** Prosjektleder Petter Bae Brandtzæg | 92806546 | pbb@sintef.no

**Les mer:** [www.sintef.no/socialhealthbots](http://www.sintef.no/socialhealthbots)

# Human-Chatbot Interaction Design

How to design chatbots?

Supported by IKTPLUS, Research  
Council of Norway



## Chatbots og interaksjonsdesign

Naturlig språk blir en stadig vanligere måte å bruke digitale tjenester på. Eksempler er Apples Siri og Googles Assistant. Facebook Messenger gir i dag tilgang til mer enn 30.000 chatbots.

Til tross for en rivende teknologiske utvikling innen chatbots gjenstår mange forskningsutfordringer. I prosjektet **Human-Chatbot Interaction Design** kombinerer vi interaksjonsdesign med kunstig intelligens og maskinlæring.

Målet er å bidra til kunnskap om brukersentrert design av chatbots, slik at disse kan bli nyttige og engasjerende innganger til informasjon og tjenester – uansett brukerens kjønn, bakgrunn og alder.

### OM PROSJEKTET

Prosjektperiode  
2017. Med mulig  
forlengelse til 2020

Program IKTPLUS

### PARTNERE



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**Les mer:** [www.sintef.no/humanchatbotinteractiondesign](http://www.sintef.no/humanchatbotinteractiondesign)

# Chatbots for Loyalty

How to develop chatbots that strengthen users loyalty to service providers (customer service and education)

Supported by BIA, Research Council of Norway





## Interacting with AI module 2

Sept 24 – Oct 15

Interaction with AI - overview

Explainable AI

Intelligent agents - AI system as partner

Interaction with AI in social contexts

Chatbots – interacting with AI in natural language

Platforms and frameworks for interaction with AI

User-centred design of AI