DESIGNING AND BUILDING CHATBOTS FOR PRO BONO LEGAL CLINICS

Irene Ng (Huang Ying)

Fellow, Stanford Law School, Transatlantic Technology Law Forum
559 Nathan Abbott Way, 94305-8610 Stanford, USA
Ng.Irene.Huangying@gmail.com

Abstract: *This article explores how legal clinics can harness chatbot technology and ride on the growing acceptance of chatbot-human interaction to build a chatbot that can assist legal clinics, be it resolving administrative tasks or providing legal advice. While developing bots for the legal industry is not a novel idea, specific considerations must be considered when designing and building a chatbot for legal clinics. This article discusses how chatbots could be built and designed, while highlighting the potential and impact of chatbots in assisting legal clinics.*

1. Introduction

The idea of using chatbots to serve a legal function is not novel. Chatbots, such as DoNotPay and Visabot, have made waves in the legal circle for performing functions that previously required lawyers to do so. DoNotPay assists users who want to repeal their parking fines.[1] Visabot, which has been selected by LexisNexis as a legal tech accelerator participant,[2] helps users apply for US green cards.

Deploying chatbots for pro bono legal services, such as for pro bono legal clinics (hereinafter «legal clinics»), is an interesting and efficient proposition. Chatbots can help relieve workload by automating simple and repetitive tasks. A more sophisticated chatbot can provide further assistance by redirecting people to the right places. The most developed chatbots may potentially assist in providing legal advice. Thus far, there has only been one chatbot – LawBot[3] – that provides legal assistance on criminal matters. There is still much room for growth in this area, especially for legal clinics.

This article discusses how legal clinics should consider designing chatbots to meet their needs. It will also evaluate the challenges, potential and impact of building these chatbots for such a purpose.

2. Designing Chatbots for Pro Bono Services

Chatbots are built for specific functions. For a clinic, this can include the following functions: increasing administrative efficiency (e.g. appointment scheduling), FAQ assistant (e.g. resolving simple queries, or directing applicants to the right agencies), means testing agent, or providing legal advice. As chatbots directly interact with the user, it should be designed to give a good conversation as well. Users should feel easy and comfortable when using the chatbot, and users should have their problems should be resolved.

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[1]   SAMUEL GIBBS, Chatbot lawyer overturns 160,000 parking tickets in London and New York, The Guardian. https://www.theguardian.com/technology/2016/jun/28/chatbot-ai-lawyer-donotpay-parking-tickets-london-new-york, 2016.

[2]   http://visabot.co (all websites last accessed on 28 October 2017).

[3]   LAWBOT, University of Cambridge Judge Business School. https://www.jbs.cam.ac.uk/faculty-research/centres/social-innovation/cambridge-social-ventures/our-graduates/lawbot/.

2.1. The Right Bot for the Right Job

The main driving question when starting to build a chatbot is as such: «What is my bot being hired to do?»[4] This question naturally extends to how chatbots are programmed to solve a person's queries in the best way, and how chatbots should be designed to make people feel comfortable interacting with them. One must first clearly defining the objectives that the chatbot should achieve, and subsequently design the chatbot to achieve these objectives.

Objective	How does a chatbot help?
Directing web visitors to the right agencies or legislation	Chatbot can provide users hyperlinks to the requested agencies or legislation (e.g. Foreign Ministry, Ministry of Manpower)
Determining whether an applicant meets the means test for free legal representation	Chatbot asks users for a specific set of information in a Y/N format, and depending on the user's response, the chatbot can identify whether the means test has been reached
Guiding people who have received a criminal charge	User describes the situation to the chatbot, the chatbot asks for further information such as the offence, and whether the user has sought legal advice, etc.
Scheduling legal clinic timings with the accepted applicants	Bot provides a list of available dates and times, and the user confirms.

Table 1: Sample objective table for a pro bono service provider

Each chatbot should be designed to achieve *one* objective at any instance, but with the ability to respond in multiple ways to achieve the same objective.[5] Chatbots are trained with data, and become better with more data.[6] Focusing the chatbot on one objective at a given period allows focused collection of data on that same objective, thereby providing developers with highly relevant and useful data to train the chatbot to perform its task better.

2.2. Designing the Conversation

2.2.1. Reducing Errors and Interruptions

The conversation is designed with the objective to meet the user's needs. This usually means the conversation is succinct and short to reduce errors and interruptions.[7] A longer conversation flow provides users with more opportunities to input typographical errors or responses that the chatbot cannot process,[8] unless the chatbot has been programmed to process common typographical errors.

There are two elements present in the conversation that enable the chatbot to achieve its objective swiftly. The first element is the *nature* of the *questions*. To better illustrate this, sample conversations, i.e. A, B and C, are provided in the next paragraph. In Conversation A, the chatbot's questions provide the User with room to ask anything. The chatbot can be programmed to process the query if it picks out the word «appointment» and the date «26 october 2017». Unless programmed to do so, the chatbot cannot process the query if «appointment» is spelt wrongly or synonyms are used, e.g. «meeting», «consultation». In Conversations B and C, the question directs the user to only provide a specific date that the chatbot can process immediately, bypassing the need for the user to input «appointment». Conversations B and C use leading questions to direct the users to provide a response that the chatbot can process. The second element involves the restriction of responses. In Conversation C, pre-determined buttons fixes the users» response, rather than permitting the user to enter

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[4]   Lauren Golembiewski, Conversational UX: How to build robust, usable bots, ChatbotConf 2017: Guest Speaker.

[5]   Ilker Koksal, 5 small changes that drastically improve chatbot conversations, Venture Beat. https://venturebeat.com/2017/09/16/5-small-changes-that-drastically-improve-chatbot-conversations/, 2017.

[6]   Nitin Donde, How data analytics will help us understand chatbots, Venture Beat. https://venturebeat.com/2017/05/29/how-data-analytics-will-help-us-understand-chatbots/, 2017.

[7]   Helen Zeng, Bots with jobs: Designing conversational UI for the workplace, ChatbotConf 2017: Guest Speaker.

[8]   *Ibid.*

loose text. Fixing the user's response with predetermined buttons reduces the potential for typographical errors. Depending on the general education level and literacy levels of those seeking out the legal clinics, legal clinics may choose to design simpler conversations with leading questions to help users with lower levels of literacy.

Conversation A	Conversation B	Conversation C
Bot: Hi there! My name is Peter. How can I help you make an appointment with our legal clinic?	**Bot**: Hi there! My name is Peter. Please let me know which day you would like to visit us.	**Bot**: Hi there! My name is Peter. Please let me know which day you would like to visit us.
User: I want an appointment on 26 October 2018	**User**: 26 October 2018	**User**: 26 October 2018
Bot: What time would you like to fix the appointment?	**Bot**: We only have 3pm and 5pm available for 26 October 2018. Please let me know what time you would prefer.	**Bot**: Please let me know what time suits you: 3:00 pm 5:00 pm
User: 6pm	**User**: 5pm	*User responds by clicking*
Bot: Sorry, we don't have an available appointment. Could you give us another timing?	**Bot**: Your appointment has been fixed on 26 October 2018 at 5pm. See you soon!	**Bot**: Your appointment has been fixed on 26 October 2018 at 5pm. See you soon!
User: 5pm		
Bot: Your appointment has been fixed on 26 October 2018 at 5pm. See you soon!		

Table 2: Conversation flow comparisons for an AppointmentBot

2.2.2. Mirroring Man

A good conversation makes us feel comfortable with the other party that we are speaking to; an awkward conversation pushes us away from wanting to engage with the other party again. Designing good conversations between a chatbot involves imbuing the chatbot with a *character* or *personality*.[9] Legal clinics can provide a backstory for the chatbot and develop a human quality in the response of chatbots. For instance, the chatbot in Table 2 has a name called «Peter». «Peter» could be a 19 year old high school graduate who is in between high school and starting college. This 19 year old «Peter» responds with an upbeat tone. Or, «Peter» could be a 60 year old grandfather that responds with a reassuring tone. A good example would be the chatbot «Poncho»[10]. Poncho is essentially a weather bot. However, the developers have built a backstory for Poncho, thereby giving it a personality that allows it to provide weather updates in a fun way. The question therefore lies in what is the appropriate backstory for the chatbot given the objectives that the developer intends to achieve.

2.3. Designing the Chatbot for a Legal Clinic

The chatbot should generally fulfil one objective at any given moment. The clinic should identify what is the objective that they want the chatbot to fulfil. Building a chatbot that does appointment scheduling, filtering applicants for mean tests, and providing legal advice at the same time can result in none of the objectives being achieved by the chatbot due to the multitude of responses that the user can input, leaving the field open for more errors.

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[9] JOHN PALVUS, The Next Phase of US: Designing Chatbot Personalities, Co.Design. https://www.fastcodesign.com/3054934/the-next-phase-of-ux-designing-chatbot-personalities, 2016.

[10] https://poncho.is/.

Mirroring real life, the administrative staff arranging for your appointment is a different person. The personality that the developer gives for an AppointmentBot will likely be different from a LawyerBot. Furthermore, applicants seeking legal aid may – depending on what kind of aid they are seeking – be caught in an emotional divorce, facing a criminal charge, or simply a curious layperson trying to find out his rights. Such chatbots can be designed to have a warm, friendly, and understanding personality to make the user feel comfortable when interacting with the chatbot.

3.   Challenges in Building Chatbots for Pro Bono Service Providers

3.1.   Providing of Legal Advice

A chatbot that provides legal advice can run into thorny issues. One issue lies in whether the provision of legal advice is restricted – which is the case for most countries in at least the Western world. If the chatbot is to be treated as a mouthpiece of the clinic, which is entitled to dispense legal advice, then this is resolved. Chatbots that otherwise provide legal advice outside of the legal clinic setting may run afoul of legislation or codes on rules of conduct relating to the provision of legal advice.[11]

3.2.   Gathering and Processing Data

Data helps to train the chatbot to answer queries. Logically, legal clinics must therefore provide relevant data. Identifying data streams and digitizing data is the first step. Data streams can come from various sources: records kept by legal clinics on inquirers or applicants, staff who have worked directly with inquirers or applicants, or lawyers working at legal clinics. Processing the data to ensure that it is useful for training the chatbot is the next step. This can include organizing and categorizing data, or crunching numbers to develop useful statistics. These statistics can help developers predict how a conversation will turn out when a user that fulfils certain criteria makes an enquiry or application. For instance, users who ask chatbots «how successful is a criminal appeal» means that developers must have numbers on successful convictions for users seeking legal clinics. Legal clinics must have these numbers on hand if they intend for their chatbots to deal with these queries.

Following this, processed data used to train chatbots should always be relevant and objective. Data that is not objective may result in an inaccurate representation of the situation, e.g. one person has been charged under this crime and was convicted – conviction rate for this crime is therefore 100% – while a precedent, and technically true, it may be misleading for the chatbot to state that «your chance of conviction is 100%». In such scenarios, a disclaimer should be included, or the chatbot should state there is insufficient data at the moment to make a proper conclusion.

Any data collected or used should comply with the state's data protection terms, and if such data is provided to a third party to process, the third party must similarly comply with data protection rules.[12]

3.3.   Complex Tasks Related to Natural Language Processing

While a clinic can anticipate what kind of applicants will need their help, they cannot choose their applicants. Developers can expect applicants with varying degrees of language ability, and should program chatbots to handle these language permutations. Unless the chatbot developer restricts the user's input to predetermined buttons or simple answers (e.g. date, time), the bot may need to be equipped with advanced natural language processing skills to handle different dialects or even languages.

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[11]   This is a sticky issue on the regulation of legal technology. A person requires a license to give legal advice, either for income or for pro bono. However, it is still generally debatable whether legal advice given by an AI will render the software developer liable for breach of illegal legal practice.

[12]   Each country has its own data protection rules. As for the European Union, it has established the General Data Protection Regulation (usually abbreviated as GDPR). The European Union will enforce the General Data Protection Regulation from 25 May 2018. All member states of the European Union are expected to comply with these rules.

3.3.1. Dialects or Variations of the First Language

There is a likelihood that those seeking legal aid do not speak the language in its «official» form, but a dialect. A chatbot that is trained to understand an official language only may not be able to process dialect, e.g. German as compared to Bayerische Sprache, English as compared to Singlish.[13] Nouns, adjectives, and syntax can differ greatly between an «official language» and a dialect. If a dialect is highly prevalent and used in the region, the developer may consider train the chatbot to recognise words from dialects. However, this means more effort may be needed to train the chatbot to respond and process such inputs. Linguists and native speakers of dialects may have to work with developers to achieve the right outcome.

3.3.2. Different Languages

There are numerous instances where a person seeking legal aid may not speak the language of administration in that country. These are more likely to occur in specific vulnerable categories of people, such as: foreign spouses, foreign workers, or refugees.[14] Developers that build chatbots for these legal clinics should be aware that users are highly unlikely to speak the language of administration. It is unlikely to be efficient to create a chatbot for every different possible language that the institution encounters, unless there is strong statistical trend showing that most enquirers or applicants speak a certain language. In this case, developers may thus opt to limit input to easily understood option buttons that such enquirers or applicants are highly likely to understand or find someone to translate the options to them.

3.4. «Can I Speak to an Operator, Please?»

Legal advice, when sought, should be provided accurately. If it is certain that the chatbot will unlikely be able to provide proper assistance due to insufficient data, or a huge discretion is permissible (e.g. a specific element of a means test: the rule is that applicants must have annual income of $50'000 or less, but the clinic has accepted exceptions whereby the applicant earns $50'500), the chatbot should prompt the user to contact a human-operated helpline. The simple rationale is that if the chatbot provides wrong advice, the situation can be dire due to the nature of the enquiries. A good fraction of these enquirers unlikely able to afford paid professional opinion, and in some cases, there is an urgency for legal advice to be dispensed, such as when the applicant is facing a criminal charge. In such a case, developers should prompt the user to contact a specific human-manned hotline if the chatbot cannot resolve the query.

4. Potential and Impact of Chatbots in Pro Bono Services

4.1. Scalability of Chatbots

Chatbots that have successfully achieved one objective can be used as a «template» for scaling. Experience and feedback gathered from deploying these chatbots can allow developers to deploy another chatbot quickly to tackle a different objective but with the same target audience. Developers can also deploy and develop these chatbots for use in other legal clinics.

4.2. Developing Greater Interactivity?

The ideal chatbot is an «all-in-one» chatbot that can resolve multiple objectives set by the developer. A chatbot can run means test, and divert enquirers to the right agencies or procedures is easier for the user, rather than having two chatbots. Current technology allows multiple users interacting with the chatbot, although with

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[13] NADINE FREISCHLAD, Indonesian speaking chatbots are here! Soon everyone can use them, TechInAsia. https://www.techinasia.com/kata-chatbot-platform-for-indonesian, 2016.

[14] For instance, the Refugee Law Clinic in Cologne provides language translations in French and Arabic, despite German being the «official» language for the country. http://lawcliniccologne.com/.

significant limitations.[15] In the case of legal clinic, having multiple users interacting with the chatbot is not advisable. Users come from different backgrounds and may have different fact patterns. To provide accurate and focused assistance, each user should have a «private» conversation with the chatbot rather than a group dialogue. This also creates an atmosphere of privacy and confidentiality between user and chatbot, akin to that of a secretary arranging for an appointment with a client, and a lawyer providing legal assistance to a client.

4.3. Shifting of Resources

While chatbots may not presently be advanced enough to respond and react like a human, chatbots can at the very least perform simple tasks that would otherwise require a person to attend to. Activities such as scheduling an appointment for a legal clinic, doing the preliminary screening for a means test, pointing out which agency can the enquirer seek, can potentially be done by a chatbot. Legal clinics are likely to have limited amount of funding, resources and manpower. With the deployment of a chatbot that can handle these administrative tasks that must be previously attended to by humans, and once the chatbot is able to handle these tasks, the clinic can use the freed-up manpower and resources by improving existing services for the benefit of applicants and enquirers. This increases the clinic's efficiency as it can do more with the same resources by automating simple tasks wherever possible.

4.4. Cost Benefit Analysis

Developing chatbots require time, effort and resources. Money and time must be spent to build the bot itself, and staff and volunteers from the clinic need to gather the data, and subsequently assist the developer to train the chatbot to provide accurate responses to the users. Time and effort is also needed to build a character or personality to infuse into the chatbot if the chatbot were to have a human touch. The question therefore is whether time and resources expended to build the chatbot is justified. Clinics should carefully identify the objective that the chatbot is built to achieve. Such an objective can initially aim to automate simple and repetitive tasks (e.g. scheduling of appointments). However, creating a more advanced chatbot – providing of legal assistance– may require more time and money to build. The clinic should therefore consider the value proposition for the time and money spent.

5. Conclusion

Spending resources to build a chatbot may not be in the budget sheet for a legal clinic. But for legal clinics that are interested in this technology, they can start off by building chatbots to resolve simple tasks such as automating the responses to repetitive queries, and subsequently scale them to resolve more complex queries. Depending on the amount of resources the legal clinic has, it may be worth considering whether it makes sense, cost-wise, to build a natural language processing chatbot that can be later deployed for other purposes, or make a chatbot that provides users with pre-determined options to reduce inaccuracies. Both options have their pros and cons, and the pro bono service provider should decide based on its resources and intention.

With increasing awareness of technology and growth in the presence of chatbots in our daily lives, people become comfortable with interacting and «trusting» chatbots to guide us. It would not be surprising if people become comfortable with chatbots, and correspondingly see pro bono service providers eventually deploying chatbots to assist enquirers or applicants. However, any such chatbot deployed should be built to be trustworthy, understanding, and with the ability to create such an atmosphere as well. Volunteers and staff can chip in to create this new «colleague» of theirs. It will be exciting to see how chatbots and volunteers can work side by side in legal clinics in the future.

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[15]   Matthew Black, Live from F8 – «Group bots» with Messenger Chat Extensions, Chatbots Magazine.
https://chatbotsmagazine.com/live-from-f8-group-bots-with-messenger-chat-extensions-641a3d66b367, 2017.