This workshop was held at the 2017 Equal Justice Conference in Pittsburgh, Pennsylvania

Title:
Emerging Technology: Envisioning Broad Benefits to Legal Aid

Presenters:
IV Ashton, LegalServer and Houston.AI, Chicago, IL
Liz Keith, Pro Bono Net, San Francisco, CA
David Neumeyer, Virginia Legal Aid Society, Lynchburg, VA
Roger Skalbeck, University of Richmond School of Law, Richmond, VA

This session will explore technologies emerging in the private sector and what they mean for nonprofit legal aid programs, including artificial intelligence, machine learning, chat bots, new tools for remote services, the use of speech and data APIs and more. The discussion will be accessible to non-techies and techies alike.
Future Tech: What is and what should never be

Equal Justice Conference 2017
Our journey:

And if I say to you tomorrow.
Take my hand, child, come with me.
It's to a castle I will take you,
where what's to be, they say will be.

bit.ly/LedZeppWhatIs
Our philosophy:

“It's tough to make predictions, especially about the future.”

Yogi Berra

Yogi Berra
catcher
NEW YORK YANKEES
Presenters

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Roadmap

Our focus:
what is developing legal technology use

Our challenge:
being ready to make the best use of coming technology

- Where are we now?
- Where are we headed?
Paving The Road to Justice

The Right Information at the Right Time in the Right Package
Current Justice System
Why Do We Need Remote Services
“We wanted flying cars, instead we got 140 characters.”

-- Peter Thiel
Hurdles to Justice

1. Complexity (Design)
2. Uniformity (Standards)
3. Transparency / Certainty
4. Connectivity
Pathways to Justice

1. Simplicity
2. Trust
3. Interoperability
4. Findability
The Evolution of Maps

Parallels for the Road to Justice
Set in Stone (Static)
Paper-Based / Printing Press (Static)
Digital Representation (Static)
Embedded Intelligence (GPS) / Smart Forms
Where are we now?
Where are things headed?

- Well-established legal aid technology
- Evolution of triage systems and uses
- Changing nature of online search
- Optimization
- Artificial intelligence & chat bots
- Natural language processing
- Computer vision
Evolution of online triage

The triage concept

How to guide people with civil legal needs to the program or resource best-positioned to help and lead to actionable results - and in turn, help more people?
The Legal Risk Detector

RISK DETECTOR
For Housing, Debt, and Financial Exploitation

This system guides staff members through interviews with clients and helps us assess whether the client is at risk of:
- Housing Problems (eviction, foreclosure, conditions, utilities, etc.)
- Consumer Debt Problems (judgments, collections, mounting debt, etc.)
- Financial Exploitation (fraud, scams, theft, coercion, etc.)

When to Use this System

Video Case Studies: Anna John Pat

Which organization are you with?
- JASA (NYC)
- LSED (Western NY State)

BEGIN RISK-ASSESSMENT INTERVIEW
The Legal Risk Detector

LSED
RISK DETECTOR for Eviction, Debt, and Exploitation

STANDARD or EXPRESS?

Which type of risk assessment do you want to do?
- STANDARD Risk Assessment (approximately 15 minutes)
- EXPRESS Risk Assessment (approximately 5-to-10 minutes)

BEGIN RISK ASSESSMENT

2 of 4: CONSUMER DEBT

Regarding your CREDIT CARDS and BILLS, are any of these true?
- There's judgement by a court against me regarding money I owe
- I'm being sued by credit card company for money they say I owe
- I think there's a freeze on my bank account
- My wages are being garnished (reduced by a court to pay debts I owe)
- I'm behind on my credit card payments (30 days behind)
- I'm behind on my credit card payments (60 or more days behind)
- I'm getting phone calls from people saying I owe money for credit cards
- I've gotten letters about money I owe on credit cards
- I feel I have too much credit-card debt
- I'm having trouble paying my bills
- I'm concerned about my credit report
- I have another problem or concern related to debt
- NONE of the above are true

Provide ANY DETAILS to help us understand the CONSUMER PROBLEM(S) selected above, including ANY ACTION TAKEN to respond to the problem(s):

Enter information here.

Based on the client's statements AND your observations, select one:
- I'm not sure if the client needs help with the consumer debt problem(s) noted above.
- I think client NEEDS HELP to resolve the consumer debt problem(s) noted above.
- I think client URGENTLY NEEDS HELP to resolve the consumer debt problem(s) noted above.
Legal Risk Detector – Sample outputs

RISK DETECTOR EXPRESS REPORT
Based on Inputs by staff member, Test Worker, on Aug 31, 2016

CLIENT: JANE DOE
Jane Doe, Female, Age 83
123 Main Street - Apt A1, Cityname, New York 11111
7188690000, jdoe@hot.com

The client RENTS home – and has an annual household income of $25,000.

OVERALL RISK FINDING: VERY HIGH

Based on the inputs provided during this session, we have found the OVERALL RISK LEVEL for JANE to be VERY HIGH:

We have reached this finding based on the NATURE and QUANTITY of the RISK FLAGS-detected, which are specified below.

RISK FLAGS & NOTES

HOUSING Risk Flags: 4
- I’m getting eviction threats or notices from my landlord
- I’m behind on my rent payments (more than 2 payments)
- My house needs repair

CONSUMER DEBT Risk Flags: 2
- I’ve gotten letters about money I owe on credit cards
- I’m having trouble paying my bills

FINANCIAL EXPLOITATION Risk Flags: 0
- Someone has asked me to sign something.
- Someone has been reviewing my financial papers for me.
- Someone has been telling me not to talk to other people about financial matters.

OTHER CONCERNS Risk Flags: 0
- No Risk Flags Identified for Other Concerns

TOTAL RISK FLAGS: 10 Identified
See the Transcript below to review all questions and inputs from this session.

PHOTOGRAPHs
The staff member has indicated that photographs would not assist with the review of the client’s situation.

RELEVANT RESOURCES
Legal Risk Detector Logic Chart

Users: Social workers who are interviewing elderly clients

INTRODUCTION
Conveys purpose and value of app. Advises on when and how to use app.

GENERAL QUESTIONS
Client name, age, etc.

MENU QUESTION
What problems do you have?
- Consumer Debt
- Financial Exploitation
- Landlord/Tenant
- None of these
- I’m not sure

SHORT REPORT
Users who select "None of these" get brief guidance based on the answers to the general questions.

ANALYSIS
CONSUMER DEBT: Questions are asked and CD Conclusion is set to one of these values:
1. Consumer Debt Only
2. Pending Litigation, Not Responding
3. Pending Litigation, Responding
4. Possible Judgment
5. Judgment
6. No Apparent Problem

FINANCIAL EXPLOITATION: Questions are asked and FE Conclusion is set to one of these values:
1. To be Determined
2. To be Determined
3. To be Determined
4. No Apparent Problem

LANDLORD/TENANT: Questions are asked and LT Conclusion is set to one of these values:
1. Rent Demand
2. Notice to Cure
3. Notice of Termination/Notice to Quit
4. Postcard Only
5. Nonpayment Petition
6. Holdover Petition
7. Eviction
8. No Apparent Problem

OUTPUTS
FULL REPORT
Summary of Findings
Comments based on all conclusions reached.

For each of the following, the conclusion is stated and explained, and next steps are provided:
- Consumer Debt Issue:
- Financial Exploitation Issue:
- Landlord Tenant Issue:
- Additional Notes:
- Transcript:

EMAIL TO USER
- Session findings summarized
- Urgent situations are noted
- Full report is attached

EMAIL TO JASA
- Session findings summarized
- Urgent situations are flagged
- Full report is attached

DATABASE UPDATED
NDS database is updated with key facts and conclusions from the session
Hybrid approaches + data-drive triage

- Collect and use analytics to update system logic over time and improve accuracy
- Incorporate machine learning for the Triage system to learn and to become more accurate in outcomes or recommendations
- Identify patterns in questions or response to “deep link” the information being provided by the Triage system to outside resources or databases
Triage from search results

Search engines are evolving from ways to find websites to ways to find information directly with in search results.

Structured markup of content facilitates Google, Bing, etc. presenting certain information in “rich” search results or “knowledge graphs”
What are the implications for how legal aid organizations create and publish legal rights and referral information online?
Statewide Shortcomings

Virginia: Court Forms

All trial courts have PDF fillable forms + instructions

Va. Trial Clerk Report: SRLs often encounter problems

How to connect civil justice need (idea) with relevant remedy (e.g. form, forum)
Statewide Shortcomings

“Down the rabbit hole”
by Samantha Marx
Microsoft / LSC / PBN Portal Initiative

The goal:

- Leverage technology to provide some form of effective assistance to **100% of people with civil legal needs**
- **Alaska and Hawaii** selected as pilot jurisdictions
- Engage all segments of the civil justice community
- Embrace broad-based view of how and where the law intersects with people’s lives and social needs

Technology to enable it:

- **Relevance-based results** from trusted providers
- **Machine learning** based on user feedback
- **Natural language processing** to help people ask and get information in everyday terms
- **Inclusive design** to create better user experiences for everyone
- Promote development of a common **schema to enhance findability** of trusted legal information in search results

Slate.com article by Microsoft CEO Satya Nadella on MSFT’s principles on AI
What is your spouse’s name?

FULL NAME: ____________________________
Optimized / Realtime Intelligence (Crowdsourcing)
Thistoo.co (Divorce)
**Thistoo.co (Divorce)**

### Your Information

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### Highlights

- **Time to Resolution**
  - In Months
- **Proceeding Cost**
  - In $.

### Breakdown

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<th>Income</th>
<th>Spouse Income</th>
<th>Number of Children</th>
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</tr>
</thead>
</table>
Virginia Law available data formats

Web Services

If you are a developer interested in providing different data layouts of the Virginia Law Portal, the following RESTful web services are available. For self contained e-Books or downloadable CSV files, see The Virginia Law Library.
APPLICATION FOR CHANGE OF NAME (ADULT)
COMMONWEALTH OF VIRGINIA    VA. CODE § 8.01-217

FORM CC-1465(B) 4/99 PDF
VA. CODE ANN. §§ 46.2-358; 46.2-359; 46.2-360; 46.2-361
Preview of the Future
Autonomous
Intro to AI
The factory of the future will have but two employees, a man and a dog. The man will be there to feed the dog, and the dog will be there to keep the man from touching the equipment.
What is Artificial Intelligence (AI)?
Most people think of this
"Artificial intelligence is a computerized system that exhibits behavior that is commonly thought of as requiring intelligence."

-- *Whitehouse Report: Preparing for the Future of Artificial Intelligence*

"Artificial intelligence (AI) is a subfield of computer science aimed at the development of computers capable of doing things that are normally done by people — in particular, things associated with people acting intelligently."

-- *Kristin Hammond, PHD*
Recent Items in the News

- AI system performs better than 75 percent of American adults on standard visual intelligence test
- A deep learning algorithm outperforms some board-certified dermatologists in diagnosis of skin cancer
  - What is really important is how they did it
Artificial Intelligence

- Narrow AI vs. General AI
- Weak AI vs. Strong AI
- Multiple Methods and Types of AI
- We are Trying to Accomplish Single Discrete Tasks and then chain them together
- Predictions (It is all about math)
- Predictions likely will never be 100%
- Training Machines through Observations
- Failure is necessary
Examples of Artificial Intelligence

- Language Detection
- Language Translation
- Text to Speech
- Speech to Text
- Personality Insights
- Tonal Analysis
- Emotional Analysis
- Concept Expansion
- Natural Language Classifier
- Relationship Extraction
Classification Systems

Natural Language:
- Natural Language Processing
- Natural Language Understanding
- Natural Language Listening
- Natural Language Generation

Computer Vision

Tonal Analysis
The broad promise of AI is to liberate people from repetitive mental tasks the same way the industrial revolution liberated people from repetitive physical tasks.
“If AI can help humans become better chess players, it stands to reason that it can help us become better pilots, better doctors, better judges, better teachers.”

—Kevin Kelly
“The advantages gained from cognifying inert things would be hundreds of times more disruptive to our lives than the transformations gained by industrialization.”

-- Kevin Kelly
Do you know what happens when you call your credit card company?
#1 Personality Profile

Matching Callers to the Right Person

Time Savings

1. Emotions Driven People
2. Thoughts Based People
3. Action Driven People
4. Reflections Driven People
5. Opinions Driven People
6. Reactions Based People
#2 Affective Computing

Emotional Intelligence

Why might we need to know someone’s emotional state or personality type
Use of Artificial Intelligence Fraud Detection

And I can’t remember what email address we used to log on to the account, and the baby’s crying—
Many tools now open source
Build with Watson

Enable cognitive computing features in your app using IBM Watson's Language, Vision, Speech and Data APIs.

Start for free on Bluemix  See the services
In law firms, the word “research” is a vague umbrella term that refers to all the database mining, web surfing and trips to the law library to find the relevant legal background and precedents in a particular case. In general, it’s grunt work, and it often gets thrown, at least at first, to associates and paralegals. Traditionally, when it comes time for a client to pay, the time spent researching gets bundled in with the hours racked up by senior level attorneys. But that is starting to change.
Chatbots
Chatbots: A. I. lawyering

Conversational interfaces

Many uses

Many platforms

Many tools: see Chatbotsmagazine.com
Multiple chatbots: donotpay.co.uk

The World's First Robot Lawyer

My flight was delayed on the way to Paris. I would like some compensation.

Show me the signs on 1850 M Street

I got an unfair parking ticket. Can you appeal for me?

What happens if I can’t afford a speeding ticket?

Login Or Signup

Prove HIV Disclosure (no signup)

Follow
Chatbot lawyer overturns 160,000 parking tickets in London and New York

Free service DoNotPay helps appeal over $4m in parking fines in just 21 months, but is just the tip of the legal AI iceberg for its 19-year-old creator.
The government must help if you are legally homeless and meet certain conditions. Would you like to get started?

Yes

Let me ask a few questions to see if you are eligible. Do you have a legal right to live here?

yes

Have you recently been sleeping on the streets or sleeping rough?

last night

Ok. Feel free to visit us at www.DoNotPay.co.uk for more help. Alternatively, if you feel that you need additional help related to homelessness, you can contact Shelter. Their number is 0808 800 4444 or 0344 515 1540 (London). There is a webchat service Shelter provides here.
Chatbot that overturned 160,000 parking fines now helping refugees claim asylum

‘Robot lawyer’ DoNotPay is giving free legal aid to refugees seeking asylum in US and Canada, and asylum support in UK
Baidu’s AI Medical Assistant provides medical diagnostic services. Please describe the patient’s symptoms.

My baby was born prematurely. His skin looks yellow and his eyes. What is the matter?

**Chinese chatbot uses AI to provide medical diagnosis**

China’s Baidu has developed a bot that uses natural language processing to interact directly with patients, supporting doctors by speeding up the process of diagnosing.
Let your officials know you’re holding them accountable.

Text **Resist** to 50409

It’s now this easy:

Hi, I’m Resistbot. I’m going to help you contact your officials. What would you like to tell them?

I want you to push for a special counsel to investigate Russian interference in the election.

Sounds great! We’ll deliver that to Senators Harris and Feinstein.

Resistbot will ask for your name and information to find your elected officials. Your representatives will know you’re a constituent—that’s who matters to them.

Just text **resist** to 50409 to get started. It takes less than 5 minutes to have your voice heard in Congress.
Column Whatever you do, don’t say yes when this chatbot asks, 'Can you hear me?'
Chatbot lawyering

‘Chatbot’ pioneer builds free tool for law firms

17 October 2016 | By Joanna Goodman

Browder is currently working on a tool that will enable law firms to build their own chatbots. ‘I believe that a large number of legal documents can be automated,’ he said, ‘so I am building a tool that requires no technical knowledge to create a bot in exchange for a link back to the firm’s website. This will enable me to expand the service from half a dozen bots to a thousand.’
A group of law students at the University of Cambridge in the UK have developed what they call the world’s most advanced legal chatbot, Lawbot. Lawbot helps victims of crime by providing a preliminary assessment of their situation and then helping them understand what actions are available for them to pursue.
The chatbot currently covers 26 major criminal offenses in England and Wales and the developers plan to add others. Among the topics it covers are sex offenses; property offenses such as theft, burglary and break-ins; and offenses against the person such as injuries, assaults and psychological harm.

Lawbot leads users through a series of questions to arrive at an assessment of their legal situation. The developers say that Lawbot’s answers are randomized so that no two conversations are the same. They are also designed to be empathetic and compassionate, assuring users “this wasn’t your fault” and apologizing for difficult questions.

The chatbot was inspired by reports that two thirds of sexual assaults in the UK go unreported and that only one in five female students report sexual assaults. Its developers say it draws from the insights of Cambridge-educated lawyers to formulate accurate questions derived from relevant statutory law.
Introducing Docubot™

Document automation for everyone

1LAW is proud to announce the creation of Docubot™, a legal document generating artificial intelligence. In conjunction with some of the best lawyers in the United States, Docubot is drawing on form databases of 1000's of legal documents. Docubot will assist individuals with legal queries as well as generate documents for them. To help serve Legal Aid, Docubot will allow users to interact via SMS text.

Tech specs:

- Written in Go at the server
- Powered by Watson – Watson rest API
- Swift on the iOS side
- Communication via Websocket protocol
- Back and forth handled through Websocket

Output – Everything is encrypted

The document is generated using a headless webkit browser that takes an HTML document and outputs a .pdf which is stored in a private S3 bucket and then a short-lived url is generated and sent to a user and each time a user loads the thread they will be given a new url. Document is backed up on the S3 server.
Incorporate your business on your smartphone for free, no lawyer required.

"Excellent and frictionless." Rated 9.5/10

- Scott, customer
Chat with Watson to discover new and upcoming movies by genre and rating.
Machine Learning Examples:

Conversational Interface

Conversational Example

- Micro-Services
- Can be served anywhere
- Convert data

API Demo

Houston Conversation API

I understand your family does utilize the Housing Choice Voucher Program. How much rent do you pay each month?

42

I understand your monthly rent is $42. Thank you for submitting your information.
Legal Issue Spotting

API Demo

Classifier API
Personality Insights
Tone Analyzer
Language Translation
Speech-to-text
Conversation
Conversation #2
OCR

Your description:
The person I pay my rent to told me that I have to move out of my apartment

Our analysis:
We are 79% certain you are experiencing the following issue: Private Landlord/Tenant

This is the distribution of other possibilities:

- 7.608% Bankruptcy/Debtor Relief
- 3.030% Collect/Repo/Def/Garnish
- 2.959% Wills and Estates
- 2.870% SSI
- 2.198% Homeownership/Real Property (Not Foreclosure)
- 1.627% Medicaid
- 0.552% Contract/Warranties
- 0.070% Advanced Directives/Powers of Attorney

Is this classification correct?

- Yes  - No

API Response:

```
{
  "code": {
    "code": "R3",
    "label": "Private Landlord/Tenant"
  },
  "geo": {
    "address": "3308 W 21st Pl, Chicago, IL 60623, USA",
    "censusBlock": {
      "FIPS": "1703181708185"
    }
  }
}
```
Machine Learning Examples:

Computer Vision

Does Anyone know how many photos are uploaded to Facebook per day?

Do you know why that is important?

OCR
Language Translation

API Demo

Houston Language Translation API

This service can translate English to/from Brazilian Portuguese, French, Modern Standard Arabic, or Spanish.

Text in source language:

Hello Houston, I need your help

Source language: English
Target language: Spanish

Response:

```json
{
  "translatedText": "Hola Houston, necesito su ayuda"
}
```
Natural Language Processing

Machine Learning Examples:

Speech Recognition

Speech to Text / Text to Speech

- Siri, Alexa, etc.
Entity Extraction

● Define the word “Bank”

● Entity Extraction from Documents

  ○ https://houston.ai/syntaxnet/index.php

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Natural Language Generation

Generation of Text by Computers
Other Trends: Visualization
Other Trends: Visualization

Larry R. Hicks
District of Nevada
2001 – Present

Motion to Dismiss
658 Total Motions

3,121 Opinions Total

2002
2017

0  25  50  75  100%
Search by: Document; Image

CARA (Case Analysis Research Assistant)
Spreading the Word...

How do we do this better?
Add to the Innovations List

- What innovations are people working on that haven’t been mentioned?
- What did programs replicate (easily).
- What did programs try to replicate and found daunting?
Why don’t we all know this already?

Resources exist:

- ProBono.Net
- LSNTAP
- LSNTAP’s LS-Tech email list,
- LSC TIG session materials
- NTEN Conference
- Glenn Rawdon (LSC), Other LSC staff
How Can we Better Share?

A National Goal: To increase the speed at which innovations are transmitted to the community, and make that transmission less haphazard.

State Goal: what is needed to spread these technologies?

Our Ask: Please think about this and help us come up with solutions, while supporting the existing tools and services, like LSNTAP.

What else?
And a final caution:

"The future ain't what it used to be"

- Yogi Berra
Thanks!

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