A Chat Bot Interface for Instant Access to Radiology Departmental Resources

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The Problem

- Numerous department-specific resources that change over time
- Learning curve for new residents and faculty
- Frequent phone calls for repeated questions
The Problem

- Complex spreadsheets
- Scattered information
The Solution

- Can an automated chat bot provide relevant information to staff?
  - Instant access to department resources
  - Guided walkthroughs for complex data retrieval
Methods

- Cloud Computing
  - Microsoft Azure
  - Azure Bot Service
  - QnA Maker
- Custom Code
  - JavaScript
  - Interacts with Azure Bot Service
- User Interface
  - Microsoft Teams
  - Web chat
Results
## Results

<table>
<thead>
<tr>
<th>Metric</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversations completed</td>
<td>51/79 (65%)</td>
</tr>
<tr>
<td>Successfully answered question?</td>
<td>25/26 (96%)</td>
</tr>
<tr>
<td>Mean turns per conversation</td>
<td>3.6</td>
</tr>
<tr>
<td>Median conversation duration</td>
<td>7.8 s</td>
</tr>
<tr>
<td>Development time</td>
<td>42.5 hrs</td>
</tr>
<tr>
<td>Approximate compute cost</td>
<td>$65/month</td>
</tr>
</tbody>
</table>
Discussion & Lessons Learned

▶ Meet users where they are
  • Built into Microsoft Teams (department standard)
  • No new apps to download

▶ Favor guided interactions
  • Prompt users with tasks the chat bot can do
  • Multiple-choice answers to avoid misinterpreting user input

▶ Use open-ended queries as a backup
Future Directions

- Natural language processing (NLP)
  - Handle spelling/language variations
  - No bot-specific syntax to learn

- Zero/minimal code alternatives

"What's the number for the ED?"

"emergency room phone"

"call the ED"

"The ED phone number is (555) 240-8293."
Thanks!
Questions or comments?

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